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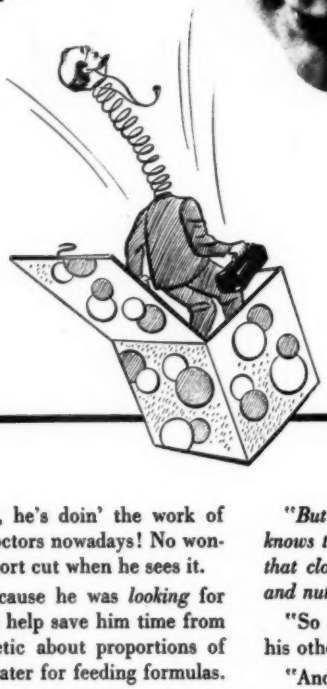
"FOR A GENT WHO'S WORKING LIKE CRAZY— MY DOCTOR SURE KEEPS HIS HEAD!"



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"He saw S-M-A—'cause he was *looking* for something that would help save him time from doing endless 'rithmetic about proportions of milk, carbohydrate, water for feeding formulas.

"And he began prescribing S-M-A—when he found out what an efficient time-saver it is. In just two minutes he was able to tell Mother how to mix and feed me my S-M-A* . . .

"But S-M-A pleases my Doctor most because he knows that in it he is prescribing an infant food that closely resembles breast milk in digestibility and nutritional completeness!

"So now he's *always* bragging about me and his other S-M-A babies!

"And Mother says she can hardly believe what S-M-A has done for me *and* my disposition! Sure looks like—EVERYBODY'S happy if it's an S-M-A baby!"

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 27 April, 1944 No. 4

POSTERIOR HERNIATION OF THE INTERVERTEBRAL DISC

An Analysis of Sixty-five Cases

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MANY comprehensive papers and several symposia have been published in the current literature on the so-called syndrome of the herniated disc and its treatment. Surprisingly little, however, is to be found in any of these papers regarding detailed follow-up studies to determine the effect of operation on the symptoms and physical signs of herniated disc.

This paper deals only with the herniated disc lesion in the lumbar spine, and is essentially a follow-up analysis of sixty-five cases of herniated disc, analyzed as to change in the individual symptoms and signs. The material included in this study represents all of the cases of herniated disc seen and treated by operation at the University of Minnesota Hospitals by the Division of Neurosurgery up to August 1, 1942. The first laminectomy performed here for herniated disc was in 1938. Hence the maximal period of follow-up is approximately five and one-half years; the minimal period of observation is eighteen months. The series includes sixty-five cases upon whom laminectomy was performed after the diagnosis of posterior herniation of intervertebral disc was made.

Terminology

The most nearly accurate description of this clinico-pathological entity according to the manner of its production is "rupture of the annulus fibrosus with postero-lateral or posterior herniation of the nucleus palposus."[6] The more popular terms employed, however, include herniated disc, protruded disc, ruptured disc, and posterior herniation of the intervertebral disc.

Incidence

There appears to be a definite age incidence in herniated disc. Lesions in the first decade of life have not been reported. They occur occasionally in the second decade, and most frequently in the third, fourth, fifth and sixth decades, with a maximum of 35 per cent in the fourth decade, but they are found even in the seventh and eighth decades. Probably on account of occupation and exposure, 70 to 75 per cent of these lesions occur in the male. The sixty-five cases reviewed include eighteen female and forty-seven male patients, ranging in age from seventeen to sixty-four years; the age distribution by decades was as follows:

INCIDENCE BY DECADES
(University Hospitals Series)

	Cases	*Percentage*
Below 20 years	3	5
20 to 30 years	12	19
31 to 40 years	21	32
41 to 50 years	23	35
51 to 60 years	4	6
Above 60 years	2	3
	65	100

From the Division of Neurosurgery, Department of Surgery, University of Minnesota Hospitals, Minneapolis, Minnesota. Read before the Minneapolis Surgical Society, Minneapolis, December 2, 1943.

Supported by grants from the Graduate School of the University of Minnesota for experimental surgical research.

Clinical History—A history of trauma to the spine, caused by lifting, slipping, sudden twisting, or forcibly falling on the buttocks, can usually be elicited as having preceded the onset of backache. Such a history of trauma as an etiological factor in herniated disc as given by various observers is listed below:

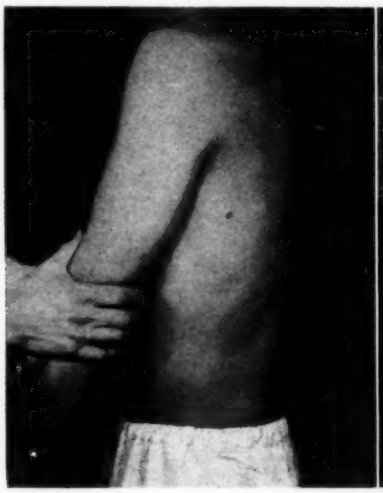

Fig. 1. Loss of lumbar curve.

Fig. 2. Testing for tenderness over vertebral interspaces.

TRAUMA AS AN ETIOLOGICAL FACTOR
(Comparison of Series)

	Cases	*Percentage*
Barr[1]	58	77
Fincher[9]	50	70
Bradford and Spurling[5]	35	50
University Hospitals	65	67

Symptomatology in Lumbar Herniated Disc

Surgical experience indicates that this lesion is a common cause of low bachache with sciatic syndrome. Many backaches heretofore ascribed to vague causes, such as lumbo-sacral and sacro-iliac strain, undoubtedly represent cases of herniated disc.

The most common initial symptom in herniated disc in the lumbar region is low backache; it occurs in 70 per cent of all cases. However, the most typical symptom is pain in the distribution of the sciatic nerve of the involved side, i.e., in the gluteal region, postero-lateral aspect of the thigh, region of hamstrings, and the posterior calf. The sciatic syndrome rarely appears simultaneously with the onset of backache, but more often occurs some time after the onset of the backache, and frequently only after repeated slight trauma or strain of an already painful back. Bradford and Spurling[6] report bilateral sciatic pain in 15 per cent of cases, but we have found it in only 6 per cent, that is, in four cases, two of which were midline disc lesions.

The pain is usually aggravated by any condition (such as coughing, sneezing, laughing, and defecation) which suddenly increases the intra-abdominal pressure, which in turn increases the venous pressure in the spinal canal; the pain is also aggravated by any activity that stretches the sciatic nerve, as flexion of the spine. Remissions and exacerbations are common, occurring in 40 to 50 per cent of the cases; however, the pain usually occurs in episodes of ever-increasing severity until eventually the patient is totally incapacitated. Subjective sensory changes, or paresthesias, may be present and take the form of numbness, tingling, burning, stinging, prickling, creeping, and crawling sensations. Their location is of more value than the location of pain in determining the site of the disc lesion. Postural changes, when present, are those which in the past have been considered classical of sciatica. Weakness, paralysis, loss of bowel and bladder function, and atrophy are present only with large protrusions which compress the cauda equina. Neuroses may simulate herniated intervertebral

disc and the differential diagnosis of these two conditions is frequently most difficult. Eight (12.3 per cent) of the cases reviewed were complicated by neuroses. Some of the explorations were negative, and with added experience we believe some of these negative cases explored would now be recognized as neuroses simulating herniated disc and operations would not be performed.

Fig. 3. Straight leg raising test.

Fig. 4. Lasègue test (See footnote page 266).

Fig. 5. Naffziger test.

Physical Findings in Lumbar Disc Herniations

The physical findings are frequently quite typical, but are not usually or necessarily elicited in a general routine physical examination. They must be kept in mind and looked for when herniated disc is suspected. The more important signs, and the special maneuvers performed when the presence of a herniated disc is suspected, are discussed below.

Posture—is frequently characteristic; there is usually some degree of obliteration of the normal lumbar lordosis, varying from mild straightening of the lumbar spine to actual reversal of the lumbar curve with kyphosis and a fixed and rigid spine (Fig. 1). Motion in the lower spine, especially flexion and extension, is markedly limited. In addition, some of these spines have scoliosis, with listing away from the side of the lesion. The customary habitus, and that of greatest comfort, is one of slight flexion of the trunk with thigh and leg also slightly flexed, and the foot in plantar flexion. Free and easy motion of the spine is always inhibited; movement is most deliberate, slow, and cautious.

Muscle spasm of the erector spinæ group in the lumbar region is frequently a prominent feature, and at times the inequality of the spasm on the two sides is visible as a difference in prominence of the paravertebral muscle groups. Palpation readily confirms the presence of absence of spasm and the comparative degree of spasm on each side.

Space tenderness or tenderness to deep pressure in the area overlying the involved interspace, lateral to the spinous process, frequently aids materially in localizing the lesion as to space. Frequently palpation may have to be rather forceful in order to overcome the muscle spasm. Point tenderness may thus be determined at the site of the lesion, and if such a maneuver results in sciatic radiation of pain, the localization of the lesion is in this way confirmed (Fig. 2).

Sciatic tenderness or tenderness to palpation somewhere along the course of the sciatic nerve is generally present. The most frequent sites of tenderness are the regions of the sacro-iliac joint, gluteal muscles, and posterior aspect of the thigh.

Sciatic nerve stretching tests include those maneuvers which stretch the sciatic nerve mechanically, thereby intensifying the pain and increasing the manifestations of root irritation. The tests used in this clinic are listed below:

Straight leg-raising test—With the patient in the recumbent position, the extended lower extremity is raised (Fig. 3). The excursion of the extremity from the horizontal position to the position in which the patient first complains of backache, sciatic pain, or painful tightness of the hamstrings, marks out an arc which is recorded in degrees. During the test the leg must remain completely extended. The limitation in straight leg raising is recorded in degrees for both extremities. Inequalities in the value on the two sides are of greater significance than an apparently diminished value when the painful side

only is tested, since the excursion varies with age and degenerative processes such as arthritis and previous trauma, and depends upon individual mobility.

Lasègue test[14]—With the patient in the recumbent position, the leg is flexed on the thigh and the thigh on the abdomen. The leg is then slowly extended, keeping the thigh flexed. The presence of pain in the back or tightness in the hamstrings in any position less than 120 degrees constitutes a positive test (Fig. 4). There exists much disagreement in the method of performing the Laseque test. Some clinics interpret the maneuver described above as the straight leg-raising test to be the Laseque maneuver.* However, there is complete accord as to the interpretation and significance of these tests: a positive test is evidence of rootlet irritation.

Naffziger test[19]—This is a modification of the straight leg-raising test. With the patient in the recumbent position, the foot is forcibly dorsiflexed on the leg. As the extended extremity is raised, this dorsiflexion of the foot further stretches the sciatic nerve and causes increase in the backache and pain along the posterior thigh. This test is usually positive at an angle of elevation 5 to 10 degrees less than the straight leg-raising test, and is useful to confirm the findings of the straight leg-raising test (Fig. 5).

Duncan's alternate push and pull test[8]—Upward pressure on the painful leg with traction on the painless leg should increase the pain in the back, and the reversal of the procedure, i.e., traction on the painful leg and upward pressure on the painless leg should lessen or relieve the pain. The test is based on the fact that lateral flexion of the spine thus produced will usually effectively compress or decompress a lesion, and thus increase or decrease the pain as the case may be. Especially is this so if the lesion is lateral in position.

Duncan's hyperextension of the spine[8]—With the patient in the supine position the legs are allowed to hang over the end of the examining table (as in the Walsher position), thus tending to produce an increase in lumbar lordosis. In a typically positive test, there is first a latent period of from one to two minutes during which time the patient is free from pain; this is followed by a steadily rising tide of peripheral pain. Flexion of both extremities on the trunk usually affords complete relief of this pain.

Knee-rocking test—The patient is placed in the supine position. One hip and knee are so flexed as to place the external malleolus on the patella of the opposite extremity. This can be done in the normal individual easily and without discomfort. If the case is one of arthritis of the hip joint or other hip joint disease, pain is promptly elicited upon depressing or rocking the knee.

Bonnet test[3]—With the patient in the supine position, the thigh and knee are acutely flexed on the abdomen and the thigh is then adducted, thus putting the capsule of the sacro-iliac joint on the stretch, and if pain is present in the sacro-iliac region the test is positive. This test was developed as a test for sacro-iliac joint disease, but a positive Bonnet test is also frequently present in herniated disc lesions.

Jugular compression test[20]—With the patient erect, a blood pressure cuff is placed about the neck. The cuff is inflated to 40 mm. Hg and pressure is maintained for two minutes. The return of venous blood from the head is thus impeded with resulting increased intracranial pressure, and, by transmission, increased intraspinal pressure. This test exaggerates pain if it is radicular in origin. Variation of pressure rather than maintenance of increased pressure causes pain. Hence the patient may also have increased pain with sudden release of the cuff pressure. This test is usually positive in those cases in which pain is also exaggerated with coughing and sneezing. A positive test is said to be pathognomonic of intraspinal disease.

Changes in reflexes—The most common abnormality found on neurological examination of patients suffering from herniated disc is diminution or absence of the achilles reflex on the affected side. This phenomenon has been reported to occur in as many as 80 per cent of herniated disc lesions. Diminution in the knee reflex occurs

*This variation in the Lasègue test is, no doubt, due to the fact that Lasègue[14] did not adequately describe any of these tests. We have designated these tests as above for convenience of expression. It would be equally proper to designate either or both of them as the Lasègue test.

much less frequently. Absence of an achilles reflex suggests a lesion at the lumbosacral space or the fourth lumbar space, while absence of a knee jerk is an indication that the lesion is at or above the third lumbar space. Reflex changes occurring in the cases reviewed are shown in the table below:

REFLEX VARIATION
(University Hospitals Series)

	Cases	*Per cent*
Changes in A. J.	42	64
Changes in K. J.	13	20
Changes in both A. J. & K. J.	9	14
Changes in K. J. only	4	6

Sensory changes—Objective sensory changes occur as hypesthesia and hypalgesia. Paresthesias, or spontaneous subjective sensations of tingling and numbness, occur more often without objective sensory changes. When only one rootlet is involved with compression by the disc, subjective sensory changes may or may not be present. However, when two or more rootlets are involved (and two rootlets are compressed more frequently in the lumbosacral herniations than in those of the third and fourth spaces), objective sensory findings are usually present. The most frequent site of sensory changes is the lateral aspect of the leg and foot, i.e., in the distribution of the fourth and fifth lumbar and first sacral segments. A comparison of the incidence of objective sensory findings as reported from various clinics is shown below:

INCIDENCE OF OBJECTIVE SENSORY CHANGES

	Per cent
Spurling and Bradford[6]	75
Love and Walsh[17]	31
Fincher[9]	85
University Hospitals Series	40

Atrophy and muscle weakness, and even complete paralysis of the lower extremities, may result occasionally, especially if the herniations are large and midline.

Lumbar Puncture—Disturbance in the dynamics of the cerebrospinal fluid is rarely found because the lesion is usually small and lumbar puncture is usually performed above the level of the lesion. Elevation of the protein is the only abnormality found in the cerebrospinal fluid, and it varies in relation to the site of the tap, i.e., punctures made high above the lesion will tend to have normal or at least lower protein values than those made close to or below the lesion. Elevated protein values have been reported in as high as 80 per cent of cases with herniated disc, but we have found that they were greater than 40 mgs. per cent in only 42 per cent of the cases reviewed.

Roentgenology—Roentgenograms of the lumbosacral region are always made when an intervertebral disc lesion is suspected. Direct evidence of a herniated disc is rarely obtained from these films, but they are necessary to rule out other lesions involving the bone, which sometimes give symptoms and physical signs similar to those present with a disc lesion. However, the intervertebral space with a ruptured annulus fibrosus and postero-lateral herniation of the nucleus palposus may become narrowed; it is a rather infrequent finding, occurring only in twelve of fifty-five cases or 22 per cent of the verified disc lesions reviewed. Even when present, a narrowed space is not conclusive evidence of a herniated disc lesion at that level.

Myelography

The use of some type of contrast medium injected into the subarachoid space of the spine is frequently very desirable and at times a necessity in the localization of herniated disc. Air, as a contrast medium, was given a relatively extensive trial in this clinic, but found to be rather unsatisfactory for several reasons. The resulting headache and increased pain which occurred quite frequently as sequellæ, were disturbing to the patient; the roentgenographic contrast with air was so slight that the interpretation was difficult and inaccurate. Lipiodol, on the other hand, gives excellent contrast and a minimum of reaction, but, of course, has the disadvantage that it is not absorbed. This disadvantage has now been almost completely eliminated, since by the technique developed and described by Kubic and Hampton[13] the oil can almost always be removed quite completely. This technique, with some modifications,[12] is now used in this clinic.

Pantopaque,* which gives slightly less contrast than lipiodol but is slowly absorbed and can be aspirated more readily than lipiodol, has been tried in this clinic and found satisfactory. At present, however, it is not available to us because of governmental priorities.

*Ethyl iodophynylandecylate prepared by the Department of Radiology of the School of Medicine and Dentistry of the University of Rochester, New York.

Roentgenological examination with contrast media should be employed only after a careful and detailed neurological examination has been done. Spinograms or contrast medium myelograms, sometimes demonstrate defects that are probably due to anatomical variations in the intervertebral discs rather than true disc lesions. Occasionally, although it has not occurred in our experience, such x-ray examinations may fail to demonstrate disc herniations which are demonstrated at surgery.

The diagnosis of herniated disc can frequently be made by history and physical examination, and accurate localization of the disc involved can also in some cases be made on these data.

The following shows an analysis of the findings at myelography correlated with the surgical findings in the cases reviewed:

MYELOGRAPHY: OIL AND AIR AS CONTRAST MEDIA

	Surgical Exploration				Myelography Not Done
	Oil		Air		
	Pos	Neg	Pos	Neg	
Disc lesion found	21	0	29	3	5
No disc lesion found	5	2	3	2	1
Totals*	26	2	32	5	6

Myelograms performed ..... 59 cases
Myelograms repeated ..... 6 cases
Myelograms not done ..... 6 cases

*The total is seventy-one because in six myelography was repeated.

Site and Incidence of Disc Lesions

Herniated discs occur in all parts of the vertebral column, from the first cervical vertebral interspace to the sacrum, but 90 to 95 per cent of them occur at either the fourth lumbar space or the lumbosacral space.

The incidence of distribution of disc lesions at the fourth and fifth lumbar interspaces, as reported in the literature, is given below:

	Fourth Space *Per cent*	*Fifth Space* *Per cent*
Barr[1]	68	32
Mixter[18]	67	33
Love and Walsh[17]	45	55
Bradford and Spurling[5]	33	67
University Hospitals Series	52	48

The distribution of disc lesions according to vertebral level in the cases reviewed is shown in the following chart:

DISTRIBUTION OF DISC LESIONS BY LEVELS

	Cases	*Per cent*
Thoracic 11th space	2	3.6
Lumbar 3rd space	3	5.4
Lumbar 4th space	26*	47.4
Lumbosacral space	24	43.6
Total		100.0

*In one of these cases there were additional herniations at the twelfth thoracic and second lumbar spaces.

Multiple disc lesions occur but are rather unusual; their incidence is as follows:

	Per cent
Love and Walsh[17]	12.0
University Hospitals Series	3.5

Differential Diagnosis

Some of the diseases which produced symptoms and findings similar to the syndrome of the herniated disc as encountered in this clinic were: Primary and metastatic neoplastic lesions of the lumbar spine and pelvis, tumors of the cauda equina, spondylolisthesis, tuberculosis of the lumbar spine, brucellosis of the lumbar spine, herpes zoster involving the lumbar and sacral segments, blood dyscrasias as Hodgkins and leukemia, syphilis, and neurosis. Neurosis is the condition that most frequently simulated disc lesions.

Treatment

During the initial episode of pain or sometimes in the presence of an acute and severe exacerbation of the pain, the patient is placed on a bed and mattress which do not sag. Buck's extension and heat are applied on the affected side, and narcotics are administered for relaxation of muscle spasm and relief of pain. Many patients are relieved by these measures, and apparently some of them never require later operation. Surgical removal of the herniated disc is necessary for permanent relief of continued and recurrent attacks of backache.

The manner of surgical approach has been changed with the cumulative experience of the surgeons interested in disc lesions. During the earlier years a bilateral and total laminectomy was performed routinely in all cases of herniated disc; during later years a hemi-laminectomy was done; most recently a partial hemi-laminectomy is the favored approach, that is, the proper interlaminar space on the side of the lesion is merely enlarged by rongeuring away the edges of the lamina. The procedure chosen, of course, de-

pends on the size and location of the lesion. In very large or midline lesions, bilateral total laminectomy is probably still the proper procedure. At least total laminectomy with transdural removal of the herniated disc seems preferable to us in very large herniations because in such lesions the spinal fluid, which should buffer the rootlets against injury when they are retracted, is replaced by more or less solid disc tissues, and retracting the rootlets of the cauda equina against this lesion may result in rootlet trauma with postoperative paralysis of the involved roots.

Recurrence of herniated disc has been reported both at the same location and in another space. Loss of the nucleus palposus with consequent defective distribution of weight in the remaining portion of the herniated nucleus palposus or incomplete removal of all loose fragments may account for recurrence in the same space. Some type of spinal fusion which would immediately wedge the vertebra apart and fix them in this position should prevent such a recurrence.[4,7,10] We are now doing this type of fusion, at least, on all patients who must return to heavy labor. The incidence of recurrence is shown below:

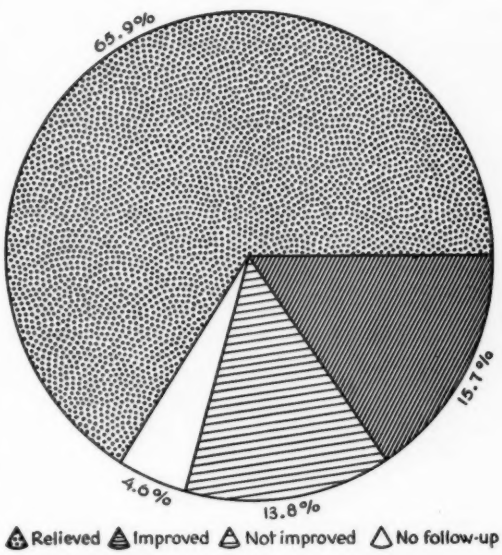

Fig. 6. Results of operation in the treatment of herniated intervertebral discs.

COMPARISON OF SURGICAL RESULTS AS REPORTED

Source	Number of Cases	Per cent			
		Relieved	Improved	Poor Result	Not Followed
Love and Camp[16]	50	66	30	4	0
Bar[2]	58	83	—	5	12*
Fincher[9]	50	80	10	10	0
Bradford and Spurling[5] ...	35	74	—	26	0
Hawk[11]	10	30	10	50	10*
University Hospitals Series	65	66	15.4	14	4.6

*Includes deaths

	Number of Cases in Series	*Recurrence Cases*	*Percent*
Love[15]	150	1	0.7
Bradford and Spurling[6]	160	4	2.5
University Hospitals Series*	55	1	1.8

*Five patients were reoperated upon, but in only two cases were recurrences found; one at the same site, and one at a different interspace. In addition, three of ten patients found to be negative at the first operation, had another later exploration, but in only one case was a disc lesion found at second operation, and this lesion was at another space than that explored at original surgery.

RELIEF FOLLOWING SURGERY

	Number of Cases	*Per cent*
Relieved	43	65.9
Improved	10	15.7
Not improved	9	13.8
No follow-up	3	4.6
Total	65	100.0

Results

In computing the results, anatomical projections were considered to be a normal variation; and only when there was definite evidence of degeneration as evidenced by fragmentation were discs considered to be herniated. The results were as follows:

	Number of Cases	*Per cent*
Disc lesion found at surgery	55	84.2
No disc lesion found at surgery	10	15.8

RESULTS OF SURGERY CORRELATED WITH SURGICAL FINDINGS

	Disc lesion removed at operation		No disc lesion found at operation	
	Cases	Per Cent	Cases	Per Cent
Relieved	37	56.9	6	9.2
Improved	8	12.3	2	3.2
Not improved	6	9.2	3	4.5
No follow-up	3 cases 4.6%			

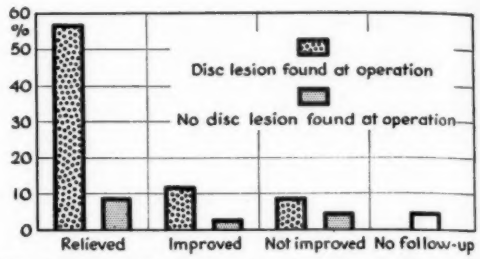

Fig. 7. Results of operation in the treatment of herniated intervertebral discs correlated with the findings at operation.

There was a history of trauma in forty-four (67.3 per cent) of the sixty-five cases reviewed. The frequency of the incidence of other symptoms and the effect of operation in relation to these symptoms are tabulated below:

EFFECT OF OPERATION ON THE SYMPTOMS

	Pre-operative		Postoperative	
Symptom	Cases	Per Cent	Cases	Per Cent
Backache	65	100.	19	29.1
Sciatic syndrome	63	96.4	18	27.5
Pain increase with cough and sneeze	58	88.7	15	23.0
Paresthesias	27	41.3	24	36.7

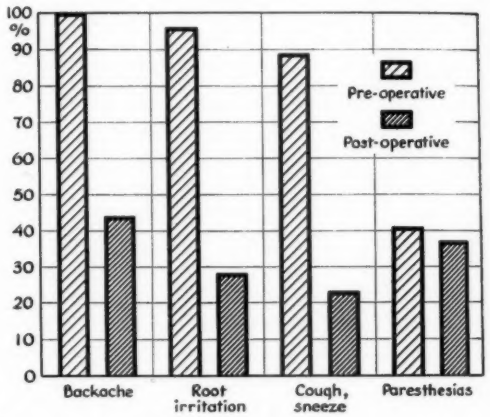

Fig. 8. Relief of symptoms by operation for herniated intervertebral disc.

The incidence of the more common physical signs and the effect of operation on these signs are tabulated below:

EFFECT OF OPERATION ON PHYSICAL FINDINGS

	Before Operation		At Follow-up Examination	
Signs	Cases	Per Cent	Cases	Per Cent
Obliteration of lumbar curve	63	96.4	41	62.7
Paravertebral muscle spasm	65	100.0	19	29.1
Space tenderness	64	98.0	18	27.5
Sciatic tenderness	62	95.0	7	10.7
Scoliosis	11	16.8	1	1.5
Straight leg-raising	65	100.0	13	19.9
Reflex changes	46	70.4	36	55.1
Sensory disturbances	26	39.8	22	33.7
Atrophy	9	13.8	9	13.8

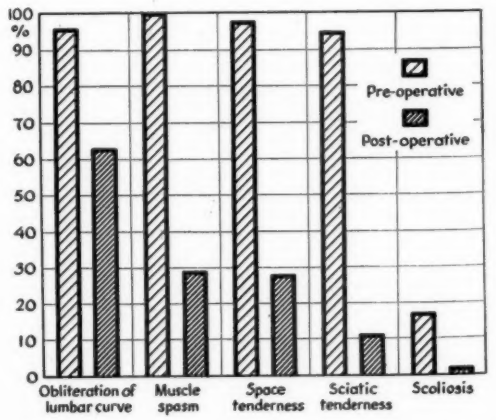

Fig. 9. Change in physical signs of herniated intervertebral disc following operation.

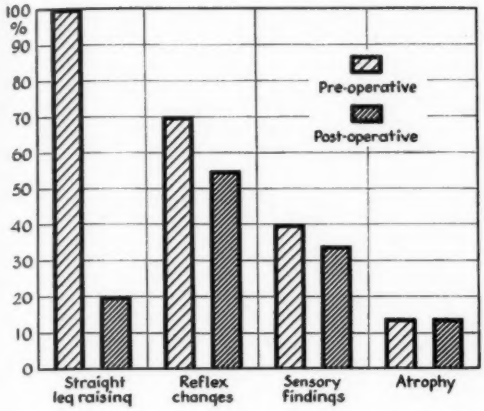

Fig. 10. Change in physical signs of herniated intervertebral disc following operation.

Analysis

In evaluating the results of operation, we classified the patients into three groups: relieved improved, and not improved. The case was considered relieved if the patient had complete relief from pain both in the back and leg, and could resume former activities; improved, if there was less pain and discomfort than before the operation and if the sciatic syndrome was alleviated, and light work could be done; not improved, if there was no improvement over the pre-operative status.

Backache, which was present in every case before operation, was completely obviated in approximately 70 per cent of the cases and relieved to a great extent in an additional 20 per cent.

The sciatic syndrome, or evidence of root irritation, present in 96 per cent of cases before operation, was present in 27.5 per cent of cases after the operation. Similarly, the aggravation of pain with coughing and sneezing that was present in 88.7 per cent of cases before operation was still present in only 23 per cent at follow-up examinations.

The lumbar curve was restored in twenty-two cases (34 per cent). Muscle spasm was relieved in forty-six cases (71 per cent), which is approximately the same number that were relieved of the symptoms of root pain. Space tenderness was also eliminated in forty-six cases (71 per cent). Sciatic tenderness was eliminated in fifty-five cases (86 per cent). Scoliosis was eliminated in ten cases (99 per cent) of those having it. Straight leg raising was restored to normal in forty-two patients (65 per cent). Reflex changes were normal in nineteen cases before operation and in twenty-nine cases after operation, but this net gain is made up of return of ankle jerk in seventeen cases and loss of ankle jerk in seven cases. The loss of ankle jerk, as a result of operation, is apparently due to manipulation of rootlets in removal of the discs, with residual damage to the rootlets. Sensory disturbances are altered but little by the surgical procedure; they were improved in four cases (6.2 per cent), indicating that damage due to compression of the rootlets is, in many instances, irreversible. Atrophy was unaltered by surgery.

Conclusions

A review and analysis of sixty-five cases of herniated disc is presented. Analysis of postoperative follow-up reveals that complete relief is obtained in approximately two-thirds of the patients, with improvement in an additional 16 per cent.

These figures include all cases of herniated disc operated in the neurosurgical division of this clinic prior to August, 1942, and include some earlier cases in which it would now seem probable that a disc was not found because neurotic conditions simulated the presence of a disc. With added experience we now believe we would recognize these neurotic conditions.

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Discussion

DR. G. R. DUNN: I am sure we all wish to thank Dr. Peyton for his most thorough and comprehensive paper on intervertebral discs. Dr. Peyton has certainly presented his findings and results on this group of cases in a very impersonal manner.

I think the number of cases with minor back complaints following disc operations has been something of a disappointment to all of us. Marked improvement is certainly the rule but a great many of the patients do have complaints of minor discomfort in the back following the operative procedure.

Dandy, in a recent article in the October number of *Annals of Surgery,* emphasizes the importance of the two component parts of the disc, the prolapsed part causing the sciatica and the central necrotic portion causing the backache.

I am inclined to think that in our treatment of these cases, we have not paid enough attention to the thorough removal of the central necrotic portion of the disc, and more careful attention to this feature may eliminate some of the minor complaints which the patients have exhibited postoperatively.

DR. R. F. MCGANDY: I was very much impressed by Dr. Peyton's explanation of some of the recurrences seen in disc operations. I refer particularly to the projection of the annular ligaments. It would seem to me that we will probably have to perform more fusions in disc operation. Dr. Peyton spoke of a wedge type of fusion and I would like to ask if he has arrived at a conclusion as to which type of fusion he feels is best in these cases?

DR. ROSCOE WEBB: Herniated, ruptured, protruding lumbar intervertebral discs are spoken of as among the most common lesions coming to surgery at this time. The different titles all suggest trauma and the published reports frequently describe the condition as being definitely due to trauma and as being always due to trauma. The trauma, we are told, may be slight or may be relatively mild. We are also told that the causation, fundamentally, is due to the anatomical variation of the third, fourth and fifth lateral facets of the lumbar vertebræ which turn upward, the maximum being reached at the fifth. I would like to hear the essayist discuss the trauma question.

The nucleus pulposus is confined in the disc under pressure and this pressure has been measured on supine fresh cadavers and found to be thirty pounds. It is also estimated that with the body erect, this pressure would be increased to one hundred pounds and that in certain spinal movements, this pressure would be increased to three hundred pounds. If a normal disc pressure can vary from thirty pounds to three hundred pounds without rupturing, it becomes difficult to understand just how a slight trauma could cause" rupture of the disc. In our football players the pressure, no doubt, is sometimes higher than three hundred pounds. Have there been an appreciable number of disc cases among our players at the University Health Service and, if so, has the material removed been only nucleus pulposus, or was there also a portion of the cartilaginous plate found protruding into the spinal canal? In other words, was there a simple rupture of the annulus fibrosus or was there a rupture which included the edge of the cartilage plate?

When we describe the condition as due to trauma are we talking about trauma alone, or are we talking about a slight trauma and a degenerated, diseased disc? In one study of three hundred sixty-eight spines, nodules were found on the dorsal aspects of 15 per cent of the autopsy cases. In a recent paper on discs, Dandy states that concealed discs occur twice as frequently as protruding discs and that in order to cure and prevent recurrences in these cases, he removes a degenerated, necrotic, mushy, brown interior of the disc with a curet. In these concealed discs the posterior longitudinal ligament is spoken of as thinned or thin and yielding. The point which I would like to hear discussed is as to which condition is due to trauma? Does a relatively mild trauma produce the degenerated, necrotic, mushy, brown material, or is this a part of a pre-existing condition in the entire disc which gradually extends to the posterior surface of the disc under the posterior longitudinal ligament, and then as the result of a slight trauma, distends the ligament or breaks through and produces the symptoms?

Saunders and Inman studied the pathology of the intervertebral discs and said, "We should like to emphasize that posterior herniations are in the great majority of instances evidence of general disc degeneration."

Degeneration in the disc is described by Saunders and Inman as coming on in the third decade. Degenerative hematomata are found to be very frequent in supposedly healthy spinal columns in middle life. The nucleus pulposus undergoes a progressive change from decade to decade and cavities with gelantinous fluid and cell débris are found. Later the nucleus becomes an amorphous, mushy mass consisting of cell débris necrosis. The annulus fibrosus shows progressive changes, the fibrous lamellæ become more definite and larger. The inner layers merge with degeneration into the expanding nucleus until a little more than a ring of the original tissue persists; the lamellæ become more swollen. Some areas show necrosis and vascularization commences. Fissures occur in the fibrous bundles. Concentric fissures anteriorly and radial fissures dorsally are described and through these radial fissures nuclear material herniates into the vertebral canal.

It seems that we should clarify this question of trauma. Do the numerous small traumas of daily life produce this degenrated necrotic condition in the discs of the more mobile three lumbar vertebræ which are constantly under thirty to three hundred pounds of pressure? Does the common variety of bachache cast suspicion on the condition of one's lower discs? Is the protrusion of a portion of a disc into the spinal canal and against a nerve root simply a part of the disease process which may occur during a period of increase in the pressure within the disc and thus account for the factor of trauma?

DR. RALPH T. KNIGHT: Dr. Peyton spoke of pressure exerted by coughing and sneezing, et cetera and said it was due to venous engorgement. I have given an anesthetic on several occasions in this type of case and one time I let the patient strain while the surgeon was searching for the disc. It had probably receded and the straining brought it out. On a number of occasions since that time, various surgeons have asked me to let the patient strain in order to bring the disc out. I would like to ask Dr. Peyton if he considers it possible to really force out the disc by a strain of this kind, and whether this might be a helpful routine procedure whenever the herniation is difficult to locate?

DR. J. H. MOE: I really have very little to offer in addition to Dr. Peyton's excellent presentation of this subject.

Our operations run very similar to those that Dr. Peyton presented. We have been getting in a follow-up period of a year approximately 70 per cent of good results. Now just what does constitute a good result is open to question. Occasionally (once a month or so) we get a letter from somebody who had a good

result and no longer has. That leads us to believe that we have not been doing enough fusions. We have watched the gradual narrowing of the interspace on x-ray and undoubtedly this, with our re-operative findings, shows that the annulus fibrosis promotes a factor in bulging and it might in connection with scar tissue produce further symptoms.

The number of cases that fuse is going to be a good deal higher. We fused approximately 10 per cent of the fifty or sixty cases we have done. We are now going to run that proportion beyond 50 per cent, and it remains to be seen whether there will be an improvement or not. I think there will.

The type of graft that Dr. White explained is the one we use. As the patient is allowed to sink down over the kidney rest, this graft fits in so snugly that it tends to make the spinous processes come apart a little bit.

DR. WM. T. PEYTON, closing discussion: In the first place, Dr. McGandy's question about the type of fusion has been quite well answered. I agree that this is the best type of fusion done at the present time. I should perhaps explain the type of graft for some of you who are not familiar with it.

An H-shaped graft is cut from the tibia with the crossbar of the H wide enough to wedge apart the spinous processes which are to be fused. Notches are then cut in the spinous processes and the graft is laid in so that when the spine is slightly flexed the graft is wedged between the spinous processes, and it is firmly held there by the notches cut in the processes. To be safe, one has to prolong the stay of the patient in the hospital. One would hesitate to let the patient up in less than a month. It might be safe to do it sooner. There is some hesitancy to routinely fuse the spine after removal of herniated disc lesions, but I am convinced that we should do fusions on more of these people than we have been doing. We have not fused many up to date. I have not seen any recurrence in patients we have fused.

Another type of fusion used by some surgeons, but so far as I know not yet published, consists of taking out more of the cartilagenous plate than we ordinarily take out. One must have special instruments in order to gouge this intervertebral space out completely. Then the space is filled in with bone chips. I hesitate to use it because it seems possible that the bone chips might slip out of place or fail to unite, and I think the graft we use is better and more safe.

The answer to Dr. Webb's question about trauma becomes very involved if trauma is to be discussed completely. I said that early in life the disc had a blood supply and was more pulpy or liquid and as age went on there were changes in the disc, and Dr. Webb described these age changes in more detail. These changes probably do make the disc more subject to herniation. It is a fact that these lesions practically never occur before twenty years of age and never in children. So far as I know, although there have been these reports on the pathological disc which Dr. Webb reviewed, the question has never really been settled as to whether an entirely normal disc can be ruptured due to minor trauma, or whether the disc must be pathological before it does rupture.

The thirty pounds mentioned by Dr. Webb, I think, was in connection with the weight necessary to reduce a disc to its original thickness after it was removed from the body. It is true that one has more weight than that on the disc in life when the spine supports the upper body and any weight lifted. On the other hand, many of these histories of trauma describe the attack as having followed unusual motions, such as Dr. McPheeters said were productive of attacks, especially twisting motions. Thus there are other factors in addition to compression. One must remember that if these lesions do not occur in athletes, they have been trained to protect themselves with their muscles, et cetera. There is, therefore, more protection of trained athlete's vertebral discs. Not all disc herniations are due to trauma. I had a patient who developed this type of pain when she awoke after sleeping on a soft mattress.

I cannot answer you, Dr. Webb, as to whether these discs are degenerated when they herniate or not. I think probably they are not all normal discs when they herniate, but I have no proof of this.

When you talk about concealed discs, it is all a mystery to me. I do not know what a concealed disc is. I know how they have been described and what they are supposed to be according to description, but I have never recognized one. I am sure that if I have operated on such a disc, I have recorded it as a negative exploration. There may be such a thing as a concealed disc, but I am not convinced that there is.

Dr. Webb also asks if all backaches are due to discs. The answer is no, but backache may be the precursor of a disc herniation for a long time with no other symptoms. I have never operated on a patient who had backache only without sciatic radiations of pain. I think it would be a very difficult diagnosis to make if there was no sciatic nerve radiation of pain.

Dr. Knight asked about changes in position of the spine being effective in bringing the disc out. I do not doubt that certain motions of the spine may bring some herniated discs out into the spinal canal, and I wonder if such a receded disc was not present in the patient in whom Dr. Peterson showed a very characteristic defect in the spinogram, but at operation no disc lesion was found. I believe it is possible to overlook a disc lesion because it is receded at the time of operation. We have manipulated our operating table in an effort to bring a herniated disc out, but I have not yet been able to bring one out in this manner.

Dr. Von Wagonen said that in the army it was his custom to have these people with indefinite signs of disc lesions given a forced march and returning they go directly to the x-ray laboratory for spinogram. If they were then negative, it is quite certain that there is no herniation. However, we cannot force people to march in civil life.

I think Dr. Barr has always been more in favor of spinal fusion than has customarily been done in this part of the country.

Conservative treatment has been discussed. I thoroughly agree that all of these people should be conservatively treated when they first develop symptoms. Many patients will improve to such an extent with rest that no operation is later necessary. I would not as a rule operate on a patient who was not incapacitated.

Dr. White spoke of the mobility of the spinous processes. I have tested for this mobility of the spinal processes, and I think probably when a large part of the disc is involved or is diseased, there may be a greater mobility, but in cases where I have tried it, I could not convince myself that there was increased mobility.

The military forces are right in not accepting those men who have had operations for herniated disc lesions. At the present time, in spite of the results which we report, I do not think the Federal Government should accept them for insurance and guarantee them life support if they should become permanently disabled. In the first place, many of these people who would go back to comfortable civil life would not continue to do any disagreeable task assigned them in military service, and back pain would become a very convenient excuse to get out of disagreeable work. I think for officers, who are not forced to do menial jobs, that it might be possible to operate on them and have them continue in the military forces, especially if combined with spinal fusion. We have had the experience of the Navy accepting a medical officer who had an operation without a fusion. I think the Army should continue to object to having surgical treatment of disc lesions in the field of operations, and they should eliminate those with disc lesions as far as possible in the pre-induction stage.

TORSION OF THE UTERUS

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TORSION of the uterus is not uncommon in veterinary practice, but in women it is so rare that most textbooks are silent on the subject. It practically always occurs in a pregnant uterus or in the presence of some type of pelvic tumor. The first case recorded was by Virchow in 1863. In his case the condition was discovered at post-mortem examination. The great majority of cases of torsion of the uterus have been in non-pregnant women, the subjects of fibroids or ovarian cysts. In fact, the relation between torsion and tumors is so close that some observers have thought torsion to be impossible in the absence of some type of pelvic tumor. Feiner of Brooklyn states that the normal uterus, pregnant or not, is rotated around its long axis from right to left so that the transverse diameter is not parallel to the transverse diameter of the pelvis. This physiologic torsion is very slight in the uterus of normal size and shape, but becomes more pronounced and more easily recognizable in the pregnant uterus, although it never exceeds more than a few degrees. The uterus of normal size and shape cannot turn on its long axis beyond the physiologic degree, but the tumorous or pregnant uterus can become twisted to a degree beyond normal motility. Kustner believes that an abnormal torsion of the uterus is not uncommon early in pregnancy, and that as the uterus increases in size, the torsion either rights itself or causes abortion.

The various writers on the subject are fairly well agreed on the etiological factors.

The predisposing causes most favored are pelvic tumors, adhesions, laxity of the supporting ligaments and abdominal wall, and a soft, thin-walled lower uterine segment. It is felt that a large asymmetrical uterine fibroid is very commonly a predisposing factor. The most favored activating factor is a sudden twist or turn of the body, such as suddenly turning over in bed. It is also felt that certain occupations or duties may be the exciting cause. The twisting motion of sweeping or scrubbing a floor or operating a hand scythe, all of which require a swinging motion of the body, are felt by many authors to be immediate etiological factors. Robinson and Duvall of England feel that the bladder may at times contribute to the cause by its fascial relation with the vagina, cervix and lower uterine segment. The amount of contact between them depends upon the degree of distention, and reaches its maximum when the bladder is full. A completely full bladder stiffens the lower part of the birth canal and acts as a kind of splint to the uterine pedicle. The empty bladder splints the vagina only and thus offers a fixed point around which the uterus may twist. It is felt that during pregnancy, when a woman arises during the night to empty a full bladder, torsion may occur during the act of rolling over when she gets back into bed after the splinting of the full bladder has been removed.

The initial symptoms are due to injury to the structures in the pedicle which sets up secondary changes in the affected area and later leads to involvement of the surrounding organs. The structures affected are the cervix, ganglia and nerves, uterus, broad ligaments, bladder and rectum. These structures are peculiarly susceptible to shock when subjected to mechanical trauma such as is bound to occur when twisting takes place. Occasionally torsion seems to take place slowly and in such cases there is a gradual development of the final symptoms. Hanly of Los Angeles reported a case of 180 degrees rotation at full term with no symptoms. The rotation was discovered at cesarean section for transverse position. The usual symptoms are the sudden onset of severe, acute, generalized abdominal pain accompanied by nausea or vomiting and soon followed by the development of shock to a greater or lesser degree. These symptoms may or may not be accompanied by diarrhea. Walker of England reported the case of a woman thirty years of age who had moderate, fairly continuous pain down the front of both thighs for several months. Her menstrual periods continued to be regular and normal. Suddenly the pains became very much more severe and extended to the front of the abdomen. The pain was so severe that she was unable to extend her thighs and could walk only

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with difficulty. The next day her temperature was 101 and her pulse was 100. The lower abdomen did not move on respiration and was rigid and tender. A diagnosis of torsion of an ovarian cyst was made, but at operation the uterus was found to be rotated 120 degrees to the right and to contain an interstitial fibroid four and one-half inches in diameter.

There is no single characteristic symptom on which to base a diagnosis. Robinson and Duvall believe that the diagnosis of primary torsion of the pregnant uterus has never been made before operation. They reviewed twenty-eight reported cases and found the following diagnoses had been made: seven, ectopic pregnancy; five, torsion of a pelvic tumor; four, obstructed labor; three, peritoneal crises; three, retroflexion of pregnant uterus; three, pregnancy in a closed horn of a double uterus; two, torsion of hydronephrosis; and in one no diagnosis was made pre-operatively. They feel, however, that if one is aware of the clinical manifestation of torsion he should be able to recognize it. Success in diagnosis depends on careful consideration of the history and symptoms, and physical examination of the uterus, vagina, bladder and rectum. If, during pregnancy, there is a history of acute symptoms which resemble those of perforation of the bowel, extrauterine pregnancy, or concealed accidental hemorrhage, torsion of the uterus should be suspected. Examination of the uterus may reveal a small tender lump marking the site of the engorged Fallopian tube. By examination under anesthesia it may be possible to feel the thin isthmus of tissue which marks the site of the twisting. Examination through a speculum may show the presence of spiral folds in the vaginal mucosa, especially if the twisting is in the region of the vagino-cervical junction. The passage of a uterine sound may be helpful. If no atresia is demonstrated, torsion is probably not present. Inability to pass a sound is supportive but not conclusive evidence of torsion, since there may be other causes of such inability such as the sound lodging in a fold of mucous membrane or against a part of the fetus. Vaginal bleeding is extremely rare in the presence of torsion, but is usually present in concealed accidental hemorrhage. Cystoscopic and proctoscopic examinations may show distortion of the bladder and rectum. Mistaking torsion of the uterus for ectopic pregnancy, ovarian torsion, or rotation of the pedicle of a tumor, is of no great importance, since all of these conditions should be treated surgically; but making a diagnosis of concealed accidental hemorrhage in the presence of torsion and treating the case conservatively may be fatal.

In considering treatment it is found that some writers claim to have reduced uterine torsion by manipulation. Most authors, however, agree that such procedure should be reserved for mild cases in early pregnancy in which the general condition of the patient is so good that a reasonable delay cannot prejudice the chance of recovery. In frank torsion, with the usual severe symptoms, nothing short of operation at the earliest possible moment should be considered. Operation should not even be delayed for temporary anti-shock measures, since the initial shock soon merges into progressive collapse as the vascular and nervous damage becomes more pronounced. At operation it may seem advisable simply to reduce the torsion if all tissues are in apparently normal condition and there is no pelvic abnormality which makes recurrence probable. If circulation to any of the parts has been long obstructed it is necessary to remove all devitalized tissue. If operation is performed early the postoperative course is usually uneventful.

The case which suggested a review of this subject was that of a woman thirty-one years of age. In early childhood she had mild attacks of measles, mumps and whooping cough. At twelve years of age she had pneumonia with no complications. Aside from these conditions her past medical history was entirely negative. Her menstrual periods began at fifteen years of age and were fairly regular and normal at thirty-day periods with moderate pain during the first day. She had two children, one was four years and eight months of age, and the other was seventeen months old. She had had no other pregnancies. Her last period was on January 15, 1929. Early in pregnancy she had no nausea or vomiting. About a month after becoming pregnant she began to have an almost constant dull ache in the right lower quadrant of her abdomen with a sensation of numbness throughout the entire right lower extremity. No cause for this condition was discovered, and she stated that she had had the same condition with her two former pregnancies. On the morning of June 15, 1929, she awakened with a headache which gradually became more severe throughout the day. Aside from the headache she felt normally well. Her head still ached when she went to bed at 8:00 P. M. She slept soundly from 8:00 P. M. until about midnight when she was suddenly awakened by a severe constant pain throughout her entire abdomen. She stated that the pain was so severe she could not sit up or move about in bed. She stated, in fact, that the pain was so severe

she screamed enough to attract the attention of her neighbors. She called an ambulance and was taken to a hospital at about 2:00 A. M. on the morning of June 16. I was out of town at the time, and she was seen by another physician. During the day of June 16 her pain was controlled by hypodermic injections of quarter grain tablets of morphine. I returned late in the evening of that day and was informed by the physician who had been seeing her that she was in the hospital and should be seen because she probably had a severe attack of appendicitis. When I first saw her at about midnight of June 16 her temperature was 100 and her pulse was weak at 120 per minute. She complained of constant severe pain throughout her abdomen and was extremely tender throughout the lower half. Her appearance was that of one who was extremely ill. Her urine was normal, and her bowels had moved during the day. I was unable to arrive at a definite diagnosis. I felt, however, that she certainly had some acute abdominal condition which required investigation. Through a midline incision between the umbilicus and the symphysis, the uterus was exposed and was found to be bluish in color. Further exploration revealed a moderate amount of clear fluid in the abdomen and showed that the uterus had rotated to the right through 180 degrees. The left Fallopian tube and broad ligament were stretched across the posterior surface of the uterus which was directed anteriorly. The uterus was tense, but there was a suggestion of loss in normal consistency. It was rotated back into normal position and continuous hot wet packs applied for a time, but since there was no change in its appearance a supravaginal hysterectomy was done. No other pelvic abnormality was found. The raw surfaces were covered and the abdomen closed in the usual manner. Later examination showed no interstitial fibroid and no abnormality in the shape or structure of the uterus. Although she was quite ill, her postoperative course was uneventful, and she left the hospital on July 4. I visited her on January 7, 1944, and she assured me that she has been well ever since recovery from that operation.

Summary

Torsion of the uterus is extremely rare. It almost never occurs except in the presence of some pelvic abnormality.

The main probable causative factors are pelvic tumor, cystic ovary, adhesions, changes in the splinting effect of the bladder, and sudden twisting motions of the body.

The usual symptoms are the sudden onset of severe, acute, generalized abdominal pain with nausea or vomiting and the rather rapid development of symptoms of shock.

Diagnosis is best made by a careful consideration of the history and examination of the uterus, vagina, bladder and rectum.

In the usual case the only treatment is surgical intervention at the earliest possible moment. The prognosis is good if treatment is not delayed.

TRAUMATIC RUPTURE OF THE INTESTINE

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SUDDEN trauma to the abdominal wall may cause grave havoc within the abdominal cavity without visible external sign of injury. A man so injured by blunt trauma may, after the first shock of the blow has subsided, return to his work but only when nausea or vomiting appears or abdominal pain recurs does he suspect he may be severely injured. This ability to carry on may mislead the physician when the patient reports for consultation and may result in delay which often contributes to a bad prognosis.

On the other hand, well defined serious and readily recognized injuries to the intestine will bring the patient to the surgeon's attention much earlier. Under such circumstances the prognosis is better depending on successful repair. The prognosis is definitely better too, because infection has had less time to establish itself within the peritoneum.

In the case of crushing injuries, intestinal rupture may be masked by the occurence of bone fractures, external lacerations, contusions, dislocations or other demonstrable injuries occurring at the time of the accident. Shock may be present due to these latter causes alone and intestinal injury may thus escape attention until a considerable period of time has elapsed.

Automobile accidents involving intoxicated riders furnish other instances in which intestinal injury may escape attention, especially when injuries about the head can be demonstrated or when the patient is not fully conscious and cooperative.

From the case records in our Duluth hospitals,

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reports are here given of three cases in illustration of some of the points mentioned above.

Case 1—A short stocky man, aged sixty-two, was standing working at a machine, when suddenly a flying piece of board from the machine struck him in the abdomen. He felt pain at once, stopped work and stood around for a while. He even went out and had a drink of liquor. He then returned to work but became progressively faint and he noticed he was in a cold sweat. He also had pain in the right lower abdomen. He then came to Dr. S. N. Litman for examination. He was found to be pale, clammy, perspiring freely, was doubled up and grunting and he complained of severe pain in the right side of his abdomen. His pulse was rapid and thready. His respirations were shallow and grunting. Blood pressure registered 150/90. His abdomen was rigid throughout and there was considerable difficulty in localizing any particular spot of tenderness. He was admitted to the hospital and given heat and morphine for pain. The white count was 10,000. Three hours later it was down to 9,200. His hemoglobin reading was above 90%. The red count remained above 4,500,000. The abdomen began to be distended. On the fourth day he began to vomit fecal matter. On this day the white count was 15,000. At this time he was seen in consultation. Until then he had steadfastly refused any suggestion of surgical operation. Immediate operation was recommended and was done. Incision through the right lower rectus region revealed liquid feces which poured out of the wound at once. Search in that region revealed a loop of ileum containing a round hole less than a centimeter in diameter. From this hole liquid feces were pouring out. Instead of closing this hole a No. 18 catheter, as an enterosotomy tube, was inserted through it for a distance of six or seven inches and the intestinal wall was closed around the catheter. The wall of the gut and the catheter were then brought up to the lower angle of the wound and anchored to the parietal peritoneum with one or two absorbable sutures and the catheter led out of the abdominal incision. No omentum was within easy reach. Five grams of sulfathiazole powder were distributed in the contaminated area within the peritoneum and the abdominal wound was closed leaving some of the sulfathiazole powder in the layers of the wound. No drains were left in the peritoneum. The patient was still vomiting fecal material and a nasal decompression tube was therefore maintained for the drainage of the upper gastro-intestinal tract. Parenteral fluids to the extent of 3,000 to 4,000 c.c. daily were administered subcutaneously and intravenously. On the first day following operation he was given sodium sulfathiazole intravenously. In addition to this, sulfathiazole in 15 grain doses suspended in normal saline solution was given with a syringe at intervals through the enterostomy tube each day. Salt solution was administered in this manner at intervals. Lactose too, in salt solution, was given through the tube from time to time. The sulfa-blood-level was checked daily. The highest postoperative temperature was 101.2 degrees. After a few days the fecal material draining from the nasal decompression tube cleared. Mineral oil was given through the enterostomy tube. Enemas began to be effective and his stools became loose and copious. The decompression tube was removed on the sixth day and from then on he took food and relished it. The abdomen became soft and flattened out. The enterostomy tube was removed on the tenth postoperative day, and the patient's condition then rapidly improved. He recovered, left the hospital on the twenty-fifth postoperative day and returned to his work a few weeks later. A ventral hernia in the operative wound is now his sole complaint.

Case 2—The second case was of a crushing injury occurring in a boy aged nineteen. While standing at the rear of a grocery truck he was caught between this truck and a car which crashed it from behind. He was admitted to the hospital on the service of Dr. F. H. Magney. The patient was in severe shock on admission and died within a few hours after injury. There were bruises on the left arm and over the left iliac crest and a four-inch fracture of the left iliac crest. The autopsy report described a tear of the jejunum one and one half inches in length and about six inches below the duodenum. There was beginning generalized peritonitis.

Case 3—The third case occurred in a farmer, aged fifty-eight, who, while in an intoxicated condition and while riding in an automobile, was injured. The car rolled over and he was thrown around within the car. He complained of abdominal pain and multiple bruises and abrasions about the head and extremities. He was catheterized by his attending physician, Dr. R. H. Puumula, and the urinalysis was essentially negative. X-rays of the pelvis and the back showed no fractures. His general condition was fairly good and he was allowed to go home but told to report back the next day. The next day he returned and complained of intense abdominal pain particularly in the left lower quadrant. He had by this time developed nausea and vomiting. The vomitus consisted of foul-smelling material. He was admitted to the hospital at once, where he was seen in consultation by Dr. C. H. Mead. Operation was done at once. On opening the peritoneal cavity free fluid was present. Cultures and smears were taken. Diffuse peritonitis was visible on the parietal and visceral peritoneum with a considerable amount of fibrinous exudate present over the loops of the small bowel. A jagged laceration was found in one loop of the small bowel on the mesenteric side. Liquid fecal material was exuding from this opening. A catheter was placed in the traumatic defect and the bowel closed around the catheter. The latter was then brought out through the lower end of the operative wound. Five grams of sulfanilamide crystals were left in the contaminated area. A small Penrose drain was led from deep in the pelvis out through the lower end of the operative wound. The wound was then

closed around the enterostomy tube and the drain. The patient recovered promptly and left the hospital on the twelfth postoperative day.

Comment—The small intestine is more exposed to trauma than the rest of the gastrointestinal tract and the ileum is most often ruptured. The jejunum comes next in frequency. The colon, even though it crosses the vertebral column, is seldom mentioned as subject to traumatic rupture. The duodenum, if it is injured, suffers in its third portion. Bursting, crushing or tearing injuries are commonly mentioned and are the results of blunt blows on the abdomen, falls, automobile wrecks, kicks in the abdomen, (which has occurred in football games), and muscle strain. As an instance of the latter, Berman and Roser report the case of rupture of the jejunum about three feet from the ligament of Treitz. This occurred in a man of fifty-five years with the past history of having had a laparotomy. Later he was carrying a heavy stone when the intestinal rupture occurred. There was no blow on the abdomen. At operation the peritoneal cavity was filled with intestinal contents, some still issuing from the jejunal opening. The patient recovered from the operation.

Kirby and Needle report the unusual case of a man aged fifty-nine who had recurrence of a right inguinal hernia which had been treated surgically twenty-five years before. On one occasion he was engaged in reducing his hernia when he felt pain. This increased in intensity and he was admitted to the hospital. At operation a ragged tear was found in the ileum and intestinal contents poured out from the opening. The opening was closed, the hernia repaired and the patient recovered.

The mortality in cases of ruptured intestine is not always so favorable as the foregoing statements would seem to indicate. Poer and Woliver reported three cases of their own, one of which was obviously involved intestinal rupture, which was diagnosed early. Operation was done promptly and the patient recovered. In the other two patients delay allowed the development of peritonitis to occur and both died. These authors made a very careful study of the subject and collected thirty-six cases from which they developed some interesting points. There was a mortality of 70 per cent in one group of seventeen patients in which delay was a factor in handling. In fourteen cases, constituting another group which were treated promptly, the mortality was only 35 per cent. In the group of cases with severe multiple injuries, however, the mortality was 100 per cent. Four patients had multiple intestinal perforations and three of these died.

Estes (WL) found in 2,217 consecutive accident cases of all types that thirty-two represented abdominal trauma—an incidence of 1.4 per cent. Cody reported an incidence of 0.9 per cent in a total of 5,744 accident cases.

Summary

While the incidence of intestinal rupture is comparatively small, unrecognized rupture increases the seriousness with each day—with each hour, in fact. Fortunately the modern use of sulfonamids in conjunction with operation tends to offset some of that seriousness. These patients, however, cannot go unoperated with impunity. Fortunately, too, the ileum and the jejunum are most commonly the sites of injury. The bacterial content in the fecal leakage from these sites is less at the onset of rupture than it would be in colon rupture. Patients with abdominal trauma should be studied with extreme care, observed closely and explored early rather than late.

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WAR DECLINE IN BIRTH RATE HAS STARTED IN U. S.

The war's effect on the nation's birth rate has now reached the point where a decline has set in. The decline will continue for the duration and at least one year after, statisticians of the Metropolitan Life Insurance Company predict.

For the current year they expect births to be 15 per cent below last year's number.

The peak of the wartime spurt in the birth rate came in the winter of 1942-43 when births in 11 large cities of the nation were averaging between 1,100 and 1,200 a day. Since September, 1943, however, births have been less than in the corresponding month of the previous year and by December, 1943, they had fallen 22 per cent below the unusual peak of December, 1942. —*Science News Letter*, March 18, 1944.

DESMOID TUMOR

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A DESMOID tumor is a benign growth arising from musculo-aponeurotic structures. As such, it comes under the more general term of fibroma, but it presents one distinguishing feature in that it contains striated muscle. According to MacCarty[2] it is a fibrocytoma in striated muscle. Desmoids occur most commonly in the rectus muscles of the anterior abdominal wall but may develop in any of the striated muscles or their aponeuroses.

This tumor is a distinct entity but is comparatively rare. In 1904 Pfeiffer[4] collected 400 cases in the literature. Gurlt[1] of Vienna reported eight desmoids in a series of 16,637 tumors. To date there have been 99 cases of desmoid tumor seen at the Mayo Clinic since 1908.

The present conception of the cause of these tumors is that they are secondary to muscular rupture. Possibly an inflammatory reaction develops in a small hematoma causing fibrosis and hyperplasia. Muscular rupture resulting from violent labor contractions is considered to be a frequent cause of this tumor. Approximately 90 per cent of the cases reported were in women and approximately 90 per cent of these women had borne children. In other cases a history of trauma is often elicited and these tumors also do occur not uncommonly in operative scars.

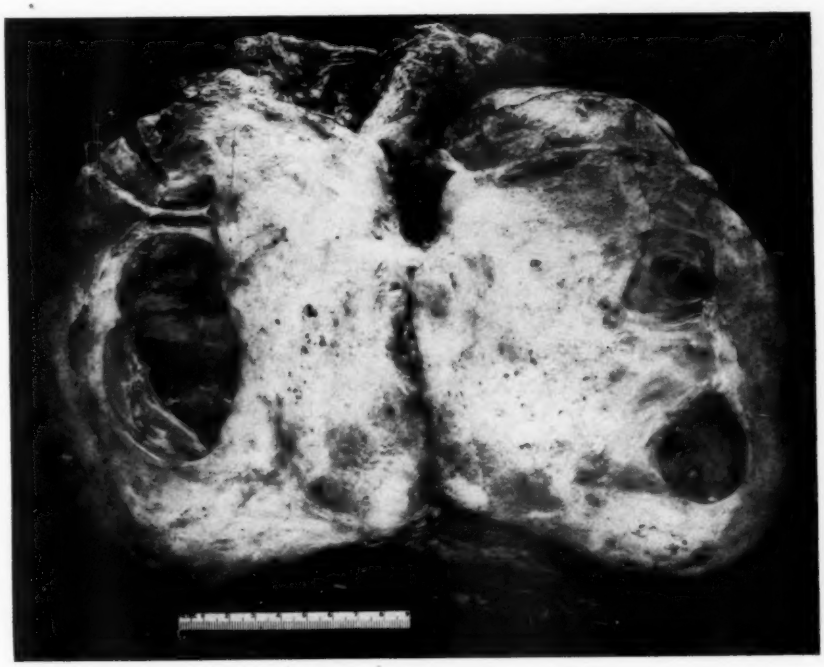

Fig. 1. The desmoid tumor bisected after removal.

Grossly the tumor is hard and fibrous and resembles a fibroid of the uterus. Microscopically it is a very cellular fibroma containing striated muscle. Because it is a slow-growing type of neoplasm, it seldom attains a size greater than 8 to 10 cm. in diameter. Rokitansky[6] in 1880 reported one weighing 17 kg. which is by far

From the Mayo Foundation (Judd, Fellow in Surgery) and the Division of Surgery (Masson), the Mayo Clinic, Rochester, Minnesota. Read at the annual meeting of the Southern Minnesota Medical Association, Austin, Minnesota, August 23, 1943.

the largest on record. Although it is an infiltrating type of growth without a definite capsule, it is a benign tumor. No cases have been reported in which the tumor has metastasized. Local recurrence is common, however, and in excising the tumor great care must be exercised to get all the tumor tissue.

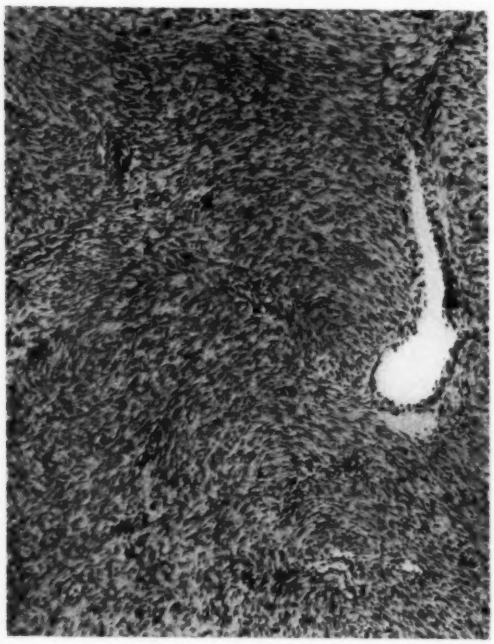

Fig. 2. Microscopic section of the desmoid tumor.

The case we wish to report is that of a twenty-eight-year-old white woman. She had given birth to a normal child previous to her present illness. Otherwise the past history was not significant. She became pregnant in September, 1942. She was followed by her local physician and her prenatal examinations all were negative until February 6, 1943, at which time a small mass was noted just above the symphysis pubis and to the right of the midline. The mass increased rapidly in size as the pregnancy advanced and it was felt that it would interfere with a normal delivery. Therefore on May 28, 1943, about a week before her expected term, the patient underwent a cesarean section. At this time the tumor extended from the symphysis to an inch below the umbilicus and considerably past the midline. An attempt to obtain a specimen for biopsy was unsuccessful because of profuse bleeding. It was determined, however, that the mass was in the abdominal wall and did not involve the peritoneal cavity.

The patient was admitted to the Mayo Clinic on July 6, 1943, with this history. Examination was essentially negative except for a large mass in the right lower quadrant of the abdomen and extending past the midline. The mass extended from the symphysis pubis to two inches above the umbilicus and measured 20 by 12 centimeters. It was firm and smooth, but not tender. It pushed down into the pelvic inlet so that the pelvic structures could not be identified on bimanual examination.

On July 13, 1943, this tumor was explored by one of us (J. C. M.). It was found to arise from the right rectus muscle but it was difficult to determine whether it involved the left rectus. The tumor was adherent to the pubic bone near the insertion of the right rectus muscle and extended to above the umbilicus. All the tumor was removed. A small hole was made in the peritoneum through which the appendix was removed and a ventral fixation of the uterus performed to prevent its prolapsing into the cul-de-sac. The wound was closed leaving five grams of sulfathiazole in the peritoneal cavity. Fortunately, the tumor had shelled out from beneath the anterior sheath of the right rectus muscle so that closure of the abdominal wall was accomplished without undue tension. Convalescence was uneventful and the patient was allowed to return home on the twenty-first postoperative day.

The tumor measured 18 centimeters in diameter and weighed 2,550 grams. The pathologist reported it to be a rather active degenerating cystic desmoid tumor. This is the largest tumor of this type seen at the Mayo Clinic. The rapid growth evidenced in this case is an unusual feature for this type of tumor.

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THE PRESENT STATUS OF INTRAVENOUS AND RETROGRADE PYELOGRAPHY

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IT is now over ten years since the first attempts to visualize the urinary tract by the intravenous injection of a shadow-producing substance were made. At this time Von Lichtenberg, Benz, Swich and other coworkers announced a preparation which they named uroselectan which could be given intravenously without injury to the vein, without serious reaction and which in most cases produced a satisfactory x-ray shadow in the urinary tract sufficient for the diagnosis of various renal and ureteral conditions. They showed that this iodide formula, uroselectan, entailed little risk.

Sodium iodide was first tried in massive doses. Braasch, among others, attempted to obtain films by this method but found them unsatisfactory, the shadow generally being faint and indistinct and the patient frequently suffering from reactions and general discomfort.

Finally, by using an organic form of iodide, a solution was perfected in which a moderate amount of the drug could be used without serious reactions and productive of satisfactory x-ray pictures. Quite naturally the medical profession welcomed this added aid in diagnosis and recognized its simplication of the x-ray study of the kidneys. Further improvement in the drug itself and better technique increased its efficiency and the enthusiasm from the procedure. It opened a considerably larger field for study of the urinary tract even to the point of applying the method as a measure of renal function.

The contribution of intravenous pyelography as an aid in diagnosis cannot be over-emphasized and no group in the profession realized it more than the urologists themselves. An index to its popularity is reflected in the fact that last year in St. Luke's and St. Mary's hospitals in Duluth there were performed 232 such tests in comparison to seventy-six retrograde procedures.

Like so many new drugs, new aids in diagnosis, new instruments and tests, the method has been the cause of many sins of commission and omission. To rely on this method, to advise, treat, or institute surgical procedures, without obtaining satisfactory or complete findings, detracts from the examiner, the test itself, and certainly is unfair to the patient. It is beyond my comprehension, how at times, some of us will accept a very poor and entirely unsatisfactory intravenous pyelogram and will proceed with some major treatment when, if the method had been the retrograde, one would have considered the film as entirely worthless.

At a recent visit in the East and at a well known urological center, above all places, this glaring mistake was witnessed by me. The patient was to have a uretero-intestinal implantation, and when the ureter was exposed it was found to be dilated as large as one's thumb. The wound was closed and the patient returned to his room with a six- to eight-inch incision and nothing else. This formidable operation was decided upon from an intravenous pyelogram which was only partially visible but was concluded to be of normal caliber. Unfortunately, too often complete reliance is placed on this type of urography and results in a wrong diagnosis of urinary pathology or, what is equally as important, the patient is given a clean bill of health when some serious condition exists.

It is the opinion of many who have become interested in this subject and have had considerable experience, that one of its greatest contributions is its ability to uncover many pathological conditions which might otherwise go unnoticed or be discovered at too late a time. The ease of the intravenous method prompts the examiner to resort to its use.

Indications for Intravenous Urography

1. The examination of children and the aged.
2. Study of the ureter after bowel implantation.
3. Study of the ureter and kidney in carcinoma of the bladder which prevents ureteral catheterization.
4. Conditions which mechanically prevent the insertion of the cystoscope, such as strictures of the urethra, bladder neck obstruction, et cetera.

Presented at the Northern Minnesota Medical Association, Duluth, Minnesota, August, 1943.

5. To determine the integrity of the ureters after certain abdominal operations, such as hysterectomies.

6. As a test for renal function.

7. In severe accidents in which there is the possibility of renal, ureteral, or bladder damage.

8. For bladder x-ray studies after the drug has accumulated in sufficient amount to outline this organ.

9. In pregnancy, where excretory urography finds a limited use. However, the visualization of the lower third of the ureter is rarely satisfactory and the danger to the fetus from multiple x-ray exposures should be kept in mind.

Contraindications

1. Marked renal insufficiency (uremia or impending uremia).
2. Marked cardiovascular diseases, such as
   (a) coronary disease.
   (b) advanced myocarditis.
   (c) decompensation.
3. Marked impaired hepatic function.
4. Active tuberculosis.
5. Hyperthyroidism.
6. Iodine idiosyncrasy.
7. Hyperpyrexia.

Indications for Retrograde Urography

1. When disease of the bladder is suspected, such as stones, growths, diverticulæ, anomalies, etc.

2. Necessity for determination of kidney function.

3. Separate collection of urine from kidneys for microscopical study.

4. Contraindications for intravenous pyelography such as iodine idiosyncrasy, hyperthyroidism, etc.

5. When pelvic lavage, dilatation of ureters or kidney drainage via ureteral catheters is necessary.

Contraindications

1. Conditions in which serious trauma or infections might result.

2. Children and the aged.

3. When it is desired to determine merely the existence of a kidney or its relation to other organs.

4. In check-up following various types of operations such as hysterectomy, ureter-intestinal implantation, etc.

Mild reactions such as a feeling of warmth, dryness of the throat and mouth and flushing are not uncommon following intravenous injection. More serious reactions may follow such as choking, palpitation, syncope, nausea, vomiting, tachycardia, pain at site of injection, acute renal pain, urticaria with swelling of the tongue, lips or eyes. Patients in whom a reaction might be suspected, may be tested by putting a few c.c. of the drug on the tongue. Another method for testing for allergy is the injection of .05 c.c. intradermally. If a wheal larger than 15 mm. results, a severe general reaction may be expected if the drug is used.

Goldburgh and Baugh, about a year ago, reported a fatality after administering the drug. This is the ninth reported in the American literature and no doubt others have occurred. Practically all deaths were quite sudden and their cause ascribed to an extreme idiosyncrasy to the dye. However, sometime ago, Mayo reported over 2500 injections without a death.

We, of course, are aware that the retrograde is not without its dangers and sometimes painful reactions follow in spite of very careful technique. Bladders have been ruptured both intra- and extraperitoneally and complete rupture of the kidney has been reported. A not uncommon accident is an extravasation into the parenchyma of the organ and the danger of the dissemination of possibly infectious material if present. Ureters have been punctured during their catheterization and trauma inflicted in their walls.

Considerable attention has been directed to the possibility of adapting the behavior of the drug as a test for renal function and undoubtedly a simple reliable test will be devised. Some of the early research work was done by two Italians. Their investigation was centered upon two phases of its activity in the kidney and ureter: (1) the intensity of the pyelo-ureteral image; and (2) the time of appearance and disappearance of the shadow. As to the first, they found that the density of the shadow depends too much on the amount of urine which happens to be mixed with the dye at the time the x-ray was taken. The second finding depended upon the variable motility of the kidney, ureter and bladder which too greatly influenced the disappearance of the dye.

On renal physiology will depend to a great degree the development of these drugs as a test of kidney function. Much new knowledge, especially

regarding the glomeruli and tubules, is assisting in making the drug adaptable as a measure of the functions of the kidneys.

Research workers such as Richards, Marshall, Smith, Shannon, Van Slyke and others have found that the cell lining of the tubules has a highly selective action in reabsorbing material from glomerular filtrates and excreting waste substances. They have found that:

1. Water is filtered by the kidney glomeruli and reabsorbed in part in the tubules.
2. Inulin is filtered by the glomeruli only.
3. Glucose is filtered by the glomeruli and entirely reabsorbed in the tubules.
4. Diadrast is filtered by the glomeruli and excreted in the tubules.
5. Urea is filtered by the glomeruli and partially reabsorbed by the tubules.
6. Skiodan is filtered by the glomeruli.
7. Hippuran, neo Iopan, etc., are handled similar to Diadrast.

Drury states that the new kidney function tests have all made use of a very general principle or law which applies to a great number of substances excreted by the kidneys. This law for any given individual, is that the amount of a substance excreted is directly proportional to the concentration of that substance in the blood during the period of excretion.

The term "clearance test" means the determination of the amount of a certain drug excreted by the kidneys in a certain period of time.

The urea clearance test is the one most generally used as a standard in experiments with various substances.

Braasch and his associates have made similar studies along this line and feel that it has considerable value. More recently, Findley, Edwards and others believe their recent experiments make the application of the clearance test practical and fairly reliable and recommend it as such.

Briefly, this method is to give the dye, as in the usual intravenous pyelogram, and collect all urine secreted in the next thirty minutes and determine the amount of iodine appearing in the urine under standard conditions. According to them, normal subjects excrete approximately 45 per cent of the injected dose during this thirty-minute period, and reductions in the rate of iodine excretion, are roughly proportional to variations in the urea clearance. This test has the added feature, that it may be done in conjunction with the usual routine intravenous method.

The interpretation of the films is quite confusing at times and considerable experience is often necessary to arrive at a correct diagnosis. We should remember that the retrograde method is purely a mechanical procedure, a simple filling of the renal pelvic space under very slight pressure, while the intravenous administration involves a strictly physiological process. Normally the kidney and ureter pass regularly through two stages of activity, systole and diastole and the pictures may be distorted depending on just which phase was taken.

As intravenous urogram depends upon the secretory function of the renal tissues, the most satisfactory films generally are those of normal or nearly normal kidneys. The most pathological kidneys are least liable to be visualized and the results disappointing. Strangely enough, occasionally no shadow will be seen in what proves to be a normal kidney and sometimes the dye does not appear until long after the usual final thirty-minute x-ray. Such a result might well lead to the diagnosis of a "dead kidney."

One very important lesson we have gained from our experience with this newer procedure is that, having in mind that the intravenous technique gives us the best pictures in normal kidneys —kidneys which are able to secrete and function to their full physiological capacity—then in direct proportion to the lack of proper visualization, should the probability of pathology be measured. This feature heretofore has not been given the emphasis it deserves.

There is a strong tendency when an intravenous film is not satisfactory, to blame the outcome on improper technique, improper preparation, et cetera, when, as a matter of fact, we have an abnormal condition, which is impossible, as yet, to demonstrate by this method. We should not allow ourselves to minimize its good features on account of an occasional disappointing one.

That there is considerable disagreement as to the best technique is well known. Opinions vary as to suprapubic pressure, bladder or rectal bulb inflation, cathartics, enemas and amount of fluid intake, prior to the x-ray exposure. The importance of the size of the dose is too often, I believe, not given enough attention. To give only one ampule to all patients will sometimes bring poor results. In other words, the amount given

should be measured by the weight of the patient. Poor pictures in large or obese patients may be due solely to this error. Nichols, of Cleveland, claims counter-pressure is not necessary and states some of his best pictures have been in patients without any special preparation.

So, then, when our intravenous study does not produce the necessary information or none at all, we should insist that the condition present is pathological until we have satisfactory evidence that it is otherwise. I believe that if we insist upon making this a hard and fast rule, we will avoid many of the pitfalls and mistaken diagnoses and eventually discover the true condition.

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◆ CASE REPORT ◆

MASKED MASTOIDITIS

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THE onset of acute mastoiditis without any clinical evidence of a previous infection of the middle ear is not a common occurrence, although a review of the literature in English reveals many reports on this condition.

In 1923, Hempstead[1] reported three cases of mastoiditis in which there was no apparent involvement of the middle ear. He said that this infection arises by direct extension from the nasopharynx to the eustachian tube, middle ear, and thence through the aditus ad antrum to the mastoid cells. This passage is sealed off and does not permit drainage of the mastoid cells. Sufficient drainage from the middle ear may occur through the eustachian tube. There may not be any signs or symptoms of involvement of the middle ear and the tympanic membrane may appear normal at the time of examination.

Frequently, this entity is referred to as a "primary mastoiditis," and attempts are made to explain that the infection is carried to the mastoid cells by the blood stream.

In 1925, Kopetzky and Almour[2] reported three cases of acute mastoiditis in which a subperiosteal abscess had developed. In all three cases the tympanic membrane appeared normal at all stages of the disease.

In 1927, Smith[3] reported four cases of this unusual type of mastoiditis and stressed the fact that this disease originates by direct extension from the eustachian tube and tympanic cavity.

Mackenzie[4] reported a case of "latent mastoiditis" in which pain on the involved side of the head was the only symptom. There was no history of otorrhea and the tympanic membrane appeared normal.

In 1932, Williams[5] reviewed 585 cases of acute and subacute mastoiditis in which operation was performed at the Mayo Clinic. In forty-one, or 7 per cent, of these cases the disease was classed as masked mastoiditis.

Pastore and Hempstead[4] reported a case of hemorrhagic mastoiditis without apparent involvement of the middle ear in which the only symptom was pain. There was no history of otorrhea or of a recent infection of the upper part of the respiratory tract.

Report of Case

A girl, aged four and one-half years, was brought to the Mayo Clinic on October 22, 1942. During the previous two weeks, she had had a cold in the head. For four days before she was brought to the clinic, her temperature had ranged from 100° to 101° F. and during this time she had had pain in the right ear and a slightly sore throat. A pediatrician had observed some redness and dullness of the tympanic membrane and some tenderness over the mastoid region of the right side. Heat had been applied and sulfathiazole had been administered.

When the patient was examined at the clinic, the eardrum appeared normal. There was mild congestion and edema over the mastoid region on the right side and the edema extended down into the anterior cervical region. Pronounced tenderness was present over the mastoid and cervical regions on the right side. The nasal mucous membrane was congested and mucopurulent discharge was present bilaterally. The tonsils were moderately enlarged. The results of general physical examination were essentially negative. The value for the hemoglobin was 8.9 gm. per 100 c.c. of blood. The erythrocyte count was 3,720,000 and the leukocyte count was 8,600. A differential blood count revealed 79 per cent neutrophils, 17 per cent lymphocytes and 4 per cent monocytes. Roentgenograms which were made when the patient was brought to the clinic revealed diffuse cloudiness of the mastoid cells on the right side. Local application of heat and administration of

(Continued on Page 309)

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CLINICAL-PATHOLOGICAL CONFERENCE

MINNEAPOLIS GENERAL HOSPITAL

J. B. Arey, M.D., Pathologist

Presentation of a Case

DR. EICHHORN: The case is that of a fifty-seven-year-old white man who was admitted to the Contagion Service of Minneapolis General Hospital on February 11, 1944, in a comatose condition. The history at that time was obtained from informants.

Three weeks prior to admission he developed chills, fever, cough associated with bloody sputum and pain in the chest. He was seen by a physician who advised bed rest and prescribed some type of medication (possibly one of the sulfonamides). After about three days of treatment he felt considerably better and again started to be up and about. After being up for four to five days there was a recurrence of symptoms, i. e., pain in the chest, cough and fever, so he returned to bed. This latter episode occurred on January 30, about eleven days prior to admission. He was now seen by another physician who made a diagnosis of lobar pneumonia. This was confirmed by x-ray examination. He was given some type of lamp treatment for a period of three days, and again symptomatic improvement was noted.

The day prior to admission the patient was quite disoriented and complained of considerable illness. The following morning he was found lying in bed in a comatose condition, and was brought to the hospital. Physical examination on admission to the hospital revealed a restless, comatose white man showing signs of considerable dehydration. His temperature was 102.8, pulse 112 and respirations 24. Examination of the eyes and ears showed no abnormalities. The neck was rigid on anterior flexion and Kernig's sign was positive. The right knee jerk was slightly more active than the left. On examination of the chest there was dullness to percussion, bronchial breath sounds and moist rales over the anterior upper portion of the right lung. The left lung and both bases were clear. The heart appeared to be shifted to the right, was normal in size, the rhythm was regular and there was a soft blowing systolic murmur at the apex. The remainder of the physical examination was essentially negative. The clinical impression was meningitis of unknown etiology and right upper lobar pneumonia.

Laboratory examination on admission revealed a hemoglobin of 72 per cent, white blood count 12,000 with 81 per cent neutrophiles. The serology was negative and the urinalysis showed nothing of note. The cerebrospinal fluid was cloudy and contained 6,350 cells per cu. mm. with 96 per cent neutrophiles. Smears of the fluid showed no organisms. Since no organisms were found, a presumptive diagnosis of meningococcic meningitis was made and intravenous sodium sulfadiazene was started. He was also given 150,000 units of meningococcic antitoxin, fluids and supportive therapy. The following day the blood and spinal fluid cultures revealed a type 19 pneumococcus, so the patient was transferred to the Medical Service.

Treatment while on the Medical Service consisted of sulfadiazene, 2 grams every four hours, parenteral fluids and sufficient sodium bicarbonate to alkalinize the urine. Penicillin was started on March 12, 1944, 50,000 units being given intravenously at once, followed by 100,000 units during the remainder of the day, the latter in divided doses given both intramuscularly and by lumbar and cisternal puncture.

With treatment the patient's temperature gradually fell to normal in a period of nine days. There was marked improvement in his clinical condition and mental status by the fifth day. By the seventh hospital day he was completely oriented. Penicillin was given for a period of ten days, a total of 1,000,000 units being administered. The blood sulfadiazene level was maintained between 15 and 20 mg. per cent after the fifth hospital day. By the second hospital day the spinal fluid cell count had fallen to 2330 cells per cu. mm. with 88 per cent neutrophiles. On February 13, 1944, the count was only 91 cells, with 10 per cent neutrophiles and 90 per cent mononuclears. The cell count subsequently varied between 40 and 300 from February 15, 1944, to February 19, 1944, following which it ranged between 45 and 55. Spinal fluid culture was positive for type 19 pneumococcus on February 12; subsequently all cultures were negative. Blood culture on February 25 was negative.

By February 29 the patient seemed well on the road to complete recovery and was able to sit up occasionally, his strength progressively increasing. However, on March 5, 1944, he suddenly complained of dyspnea and orthopnea. Physical examination at this time revealed the findings in the chest to be identical with those on admission, i.e., consolidation of the right upper lobe and no findings on the left. At this time, however, there was rather loud diastolic murmur in the aortic area. The blood pressure was now 140/40 and there was a definite Corrigan and capillary pulse. The venous pressure was 11. There were no signs of edema and the liver was not palpable.

In spite of digitalis, restricted fluids and a salt-free diet, the patient continued to have paroxysmal attacks of dyspnea and orthopnea. Because of these attacks, oxygen was started about the third day.

On March 8, 1944, numerous high-pitched rales were audible in the left chest anteriorly. The temperature rose to 100.8 on this date, having been practically normal since February 20, 1944. Blood culture on March 10 was negative and the white count was within normal limits. On this date type 19 pneumococci were found in the sputum. Sulfadiazene therapy was again instituted, but his attacks of dyspnea persisted and he died rather suddenly on March 11, 1944. Postmortem blood culture and spinal fluid cultures were contaminated, the spinal fluid contained 69 cells per cu. mm. with 12 per cent neutrophiles.

DR. AREY: Did the patient have any pain with the attacks of dyspnea?

DR. EICHHORN: He complained of a little epigastric pain, but this was never a prominent feature. The outstanding features were the paroxysmal nature of the dyspnea and the orthopnea.

DR. AREY: In summary, this case is that of a man with pneumococcic meningitis, apparently cured by chemotherapy and penicillin, who suddenly developed a high pulse pressure, a diastolic murmur in the aortic area and paroxysmal attacks of dyspnea. At times these latter were associated with considerable anxiety.

DR. STENSTROM: This is a film taken on admission February 11, 1944. There is a density in the right upper lobe evidently due to a pneumonic process. The heart and mediastinum are displaced to the right, due in part to rotation. No changes are noted in the left lung. The heart does not appear enlarged. Here is another film taken on March 4, 1944. There are now some signs of resolution of the pneumonic process in the right upper lobe. In addition, there is a rather soft, homogeneous density extending outward from the root of the left lung into the parenchyma. Although an early pulmonary edema might be considered with this picture, I would prefer to consider it as a pneumonic process in the left upper lobe.

Autopsy

DR. TAYLOR: The pertinent findings at postmortem examination were largely limited to the chest. Each pleural cavity contained 2200 c.c. of clear amber fluid. The heart weighed 475 grams. Both ventricles were hypertrophied and dilated; the right auricle was dilated. Except for the aortic valve, the valvular and mural endocardium showed nothing of note. Covering the entire ventricular surface of the right aortic cusp and extending upward beyond its free edge, was a soft, brownish-red friable vegetation 2x1x1 cm. Upon pressure, this vegetation was easily moved into such a position as to occlude the orifice of the right coronary artery. At the lateral part of the attachment of the base of this cusp was a large tear approximately 10x5 mm. completely separating the cusp from its base of attachment at this point. The left aortic cusp was slightly thickened near its central portion, the free edge did not appear significantly thickened. Near the central portion of this cusp was a circular tear approximately 5 mm. in diameter, immediately below the corpus Arantii. The posterior aortic cusp was definitely thickened and showed small areas of calcification. The coronary arteries showed no significant change.

The right lung weighed 1020 grams, the left 1270. The right upper lobe was completely consolidated and had a slightly fibrous consistence, suggesting organization of the pneumonia. The posterior aspect of the right lower lobe had a similar appearance. The remainder of the right lung showed moderate edema. In the central portion of the left upper lobe was a firm area from which no purulent material could be expressed. The remainder of the left lung showed moderately severe edema, the fluid having a faint brownish appearance.

The spleen weighed 510 grams, was congested and moderately firm. The liver weighed 2400 grams and on section showed definite darkening of the centers of the lobules. Permission for examination of the head was not granted. However, a segment of the spinal cord removed between the tenth and twelfth thoracic vertebrae by the anterior approach showed no apparent change. No infarcts were visible in any organs.

Microscopic Examination

DR. AREY: Here is a section from the central portion of the left upper lobe. As you remember, this area grossly showed edema and increased consistence. Here we have definite pulmonary edema and a number of heart failure cells. In addition, a number of alveoli contain plugs of fibrin indicative of a pneumonic process. Large amounts of fibrin are quite characteristic of a lobar pneumonia and do not, as a rule, appear with a bronchopneumonia.

This section of the right upper lobe shows large amounts of fibrin in the alveoli, with considerable organization. This is therefore an unresolved, organizing pneumonia. Persistent plugs of fibrin have been replaced by an ingrowth of fibrous tissue and capillaries, this process being known as organization. Such a process is seen with lobar pneumonia rather than bronchopneumonia because of the large amounts of fibrin in the former.

This section of liver shows a rather marked chronic passive congestion. There is marked atrophy of the liver cords in the centers of the lobules, associated with marked congestion of these areas.

Here is a section of the vegetation on the right aortic cusp. Notice that it is made up of a platelet thrombus in which are a number of nests of blue staining material. Some of the latter represent groups of bacteria and some represent accumulations of calcium. Unfortunately, the culture taken from this vegetation was contaminated, but the assumption is that it is pneumococcic in origin. Although we have no section of the valve proper, the vegetation is definitely superimposed on an old aortic valvulitis, as evidenced by the thickened cusps. This section of the spinal cord shows no evidence of disease.

The final diagnoses on this case are pneumococcic meningitis, acute aortic bacterial endocarditis on an old valvulitis, rupture of aortic cusp, cardiac hypertrophy and dilation, bilateral hydrothorax, chronic passive congestion of lungs and liver, pulmonary edema, unresolved right upper lobar pneumonia, and left upper lobe pneumonia. The pneumococcic meningitis has apparently been cured clinically; the aortic endocarditis, however, is probably of pneumococcic origin. Intermittent closure of the right coronary orifice by the aortic vegetation may have contributed to his attacks of dyspnea and heart failure.

Discussion

The meningitides may be divided into the suppurative and the nonsuppurative forms. The signs and symptoms of all the types of meningitis are sufficiently similar and well known so as to not warrant repetition at this time. It might be pointed out, however, that the symptoms of the various types of nonsuppurative meningitis are, as a rule, less violent than those of the suppurative types.

Meningococcic meningitis is the most common type of suppurative meningitis. In a review of 372 cases of purulent meningitis at the St. Louis Children's Hospital, Huntington and Wilkes-Weiss found that 43 per cent were of the meningococcic type. The disease is apparently spread by droplet infection from infected to normal individuals. The organisms multiply on the mucosa of the nasopharynx and subsequently invade the blood stream. Although the blood stream usually becomes sterile and meningitis develops within a short time, a number of cases of fatal meningococcic bacteriemia without involvement of the meninges have been reported. In over 50 per cent of early cases, a positive blood culture can be obtained.

The mortality in untreated cases of meningococcic meningitis varied considerably in different epidemics, ranging from 20 to 90 per cent. With the use of sulfonamides, however, the mortality rate and incidence of sequelae has been very markedly reduced.

Streptococcic meningitis was second in incidence in the series of Huntington and Wilkes-Weiss, comprising 20 per cent of the cases. It is usually secondary to otitis media, sore throat or sinusitis. Although the mortality was formerly very high, it also has been markedly reduced by the use of chemotherapy.

Pneumococcic meningitis comprised 16 per cent of Huntington and Wilkes-Weiss' cases. According to Hollander, most of these cases occur in children. It is most frequently secondary to some type of otorhinologic condition (34.8 per cent), but may occur as

a primary infection of the meninges (22.3 per cent) or secondary to a penumonic process (16.9 per cent).

The reported prognosis in cases of pneumococcic meningitis varies greatly with different authors. Prior to the advent of chemotherapy, the mortality was between 95 and 100 per cent. Now recovery rates ranging anywhere from 20 to 65 per cent are reported, with an average around 45 per cent. The prognosis apparently depends upon a number of factors. It is said to be favorable if the cerebrospinal fluid is sterilized within four days. Hodes, Smith and Ickes noted a recovery rate of 22 per cent in patients under two years of age, and 64 per cent in patients over two years. Hollander states that the prognosis in the younger age groups is improved by the use of combined drug-serum therapy. He also advises the use of both serum and chemotherapy in cases of type III and V pneumococci, and in cases secondary to pneumonia or otorhinologic conditions. Except in cases of types III and V pneumococci, he attaches no prognostic significance to the type of invading organism. The majority of authors agree that the prognosis is better in cases of primary pneumococcic meningitis than in those cases secondary to pneumonia or otitis media. Hodes, Smith and Ickes now advise against too early drainage of surgical foci in cases of secondary pneumococcic meningitis.

Influenzal meningitis comprised 14 per cent of Huntington and Wilkes-Weiss' series. It is due to the Pfeiffer bacillus, and apparently has no relation to influenza. The majority of the cases occur in individuals under two years of age, only 127 of 500 cases collected from the literature being in persons over two years. Huntington and Wilkes-Weiss found a preceding or concomitant otitis media or pneumonia to be significantly more common in cases of influenzal meningitis than in a similar group with meningococcic meningitis. In ten of forty-two cases they noted an otitis media or pneumonia preceding the influenzal meningitis, but were unable to determine the exact relation between these infections.

The mortality rate in cases of influenzal meningitis is extremely high, being especially high in children under two years. Of Huntington and Wilkes-Weiss' fifty-four cases there were three recoveries, two in patients over two years. In the larger series of 500 cases, there were thirty-five recoveries, twenty-six of these being in patients over two years.

Staphylococcic meningitis makes up 5 per cent of the cases of purulent meningitis. It usually develops from furuncles, abscesses, etc., and often spreads from a brain abscess. According to Michels and Gonne, only eight recoveries had been reported up to June, 1938. They reported an additional case with recovery. It is hoped that penicillin will be of distinct value in the treatment of such cases.

Barrett, Rammelkamp and Worcester collected 108 cases of meningitis caused by the colon bacillus. Although such cases may occur at any age, they are most common under three months. Barron in 1918, reviewing meningitis in infants and newborns, found E. Coli to be the responsible organism in 33 per cent of cases in infants under three months. Farber states that E. Coli is the most frequent cause of meningitis in infants under one month. On the contrary, Fothergill and Sweet state that meningitis in the newborn is due to streptococcus hemolyticus, pneumococcus or the colon bacillus, and believe the latter is the least common.

Cases of meningitis in children and infants due to the colon bacillus may present difficult diagnostic problems, the signs of meningitis occasionally being absent or appearing just before death. In a few cases the presenting symptom may be hydrocephalus.

The mortality in cases of meningitis due to the colon bacillus is given by Barrett and his associates as 78 per cent, with only 14 per cent complete recoveries. They advise the use of chemotherapy, repeated lumbar punctures and whole blood transfusions as the teatment of choice.

Fractures of the skull may give rise to a suppurative meningitis, the infection probably entering from the sinuses or middle ears.

Gonococcic meningitis must be distinguished from meningococcic meningitis.

Pyocyaneous meningitis usually occurs following surgery on the genito-urinary tract.

Of the nonsuppurative forms of meningitis, that due to the tubercle bacillus is best known. Tuberculous meningitis is said to be the most common type of meningitis except during epidemics of the meningococcic type. It is seen most frequently in childhood, and is always secondary to an active tuberculous focus. Often a predominance of polymorphonuclear leukocytes is found in the cerebrospinal fluid. The mortality is almost 100 per cent.

Rich and McCordock have shown that in cases of tuberculous meningitis there are small caseous tubercles near the surface of the brain substance or in the meninges. These foci are older than the meningeal inflammation, and apparently discharge large numbers of organisms with the resultant meningitis.

Lymphocytic choriomeningitis is a relatively benign form of meningitis, with very few fatalities. Clinically, it is associated with headaches, nuchal rigidity, vomiting, fever and an increased spinal fluid pressure. The cell count is usually not high, and nearly all the cells are lymphocytes. However, in a case reported by Viets and Warren, the spinal fluid cell count rose to 4,000, and the presence of paralysis suggested anterior poliomyelitis. Paralysis was also noted in a case reported by MacCallum and Findlay. Viets and Warren have reported a fatal case in which postmortem examination revealed an encephalitis as well as a meningitis.

A virus has been isolated from the cerebrospinal fluid of some, but not all, cases of lymphocytic choriomeningitis. Apparently not all cases belong to the virus group thus far identified.

The meninges are regularly involved in cases of meningo-vascular syphilis. In some cases there is an acute onset with symptoms similar to those of a severe meningitis.

Torula meningitis may be confused with tuberculous meningitis or brain tumor.

Tumors which metastasize to the meninges may produce symptoms of meningitis (carcinomatous meningitis).

Dr. Burklund, would you say something concerning the treatment of the various types of meningitis?

DR. BURKLUND: When meningitis patients come to us on contagion, we first do a spinal tap in order to confirm the diagnosis and to determine the responsible organisms. The majority of our cases are meningococcic. We have had about 125 cases since the first of last year, with ten to fifteen deaths. Most of the deaths have been in alcoholics or patients very severely ill on arrival.

Once a diagnosis of meningococcic meningitis is established, we use one of two forms of treatment. In the case of very ill patients, or patients in either extreme of life we use combined therapy, consisting of both meningococcic antitoxin and one of the sulfonamides, usually sulfadiazene. We start the treatment of such patients by giving 100,000 units of meningococcic antitoxin intravenously, diluted up to double its volume with normal saline. To this solution is added ¼ c.c. of 1:1000 adrenalin. The patient is also given 5 grams sodium sulfadiazene intravenously and 5 grams subcutaneously. The former is run in in a period of several hours, the latter over a period of twelve to eighteen hours. In this way, blood sulfa-levels of 15 to 20 mgs. per cent can be reached in about twelve hours. We attempt to maintain such a level throughout the period of treatment. If the patient is not comatose and is able to take sulfadiazene by mouth, we start with 5 grams orally and give 2 grams every four hours. We always alkalinize the urine and attempt to maintain an adequate fluid intake and output.

In patients not severely ill or not in the extremes of life, we use only sulfonamides for the first twenty-four hours. If no improvement has ensued at the end of that time, however, we also use meningococcic antitoxin in these cases.

Pneumococcic meningitis is treated in essentially the same manner, but type specific anti-pneumococcic serum is always used if possible. On the last two cases, penicillin has been used.

In cases of influenzal meningitis, treatment is started with sodium sulfadiazene as a continuous intravenous drip, 1/10 gram per kilogram of body weight diluted in saline or Ringer's solution. In addition, anti Type B influenzal rabbit serum is given intravenously diluted with 200 to 300 c.c. of saline. The amount of serum administered is determined by the spinal fluid sugar. With spinal fluid sugars of 15 mgs. per cent or less, 100 mgs. of antibody nitrogen of influenzal serum are given. With a spinal fluid sugar of 15 to 25 mgs. per cent, 75 mgs. of antibody nitrogen are given. With a sugar of 25 to 40 mgs. per cent, 50 mgs. of antibody nitrogen are given, and with sugars above 40 mgs. per cent, 25 mgs. of antibody nitrogen are used. Sulfadiazene therapy is maintained until the patient has run a normal temperature for at least two weeks, or until about ten days after a sterile spinal tap.

DR. STOESSER: I believe it is important to distinguish between recovery from the acute stage of meningitis and prolonged recovery. Thus, some patients are carried through the acute stage of the disease, only to suffer later from a number of complications. This is especially true in cases of influenzal meningitis, in which multiple abscesses are often discovered following recovery from the acute period of meningitis.

This danger is also distinctly present in cases of pneumococcic meningitis, in which recovery from the acute stage may be followed by a re-elevation of temperature and signs of abscesses. It is less often seen in cases of streptococcic meningitis, and now rarely seen in cases of meningococcic meningitis, although prior to chemotherapy the incidence of complications in these cases was high. Thus meningococcic meningitis, the most prevalent of the meningitides, now offers the best prognosis.

DR. SHER: Some people advise administering large doses of sulfonamide during the first four to five days, maintaining a blood level of 40 to 50 mgs. during this period. In other words, they attempt to kill all the organisms right away rather than use small doses over a period of time.

DR. STOESSER: The tendency now seems to be to give large doses of sulfonamides early.

Summary

A case of pneumococcic meningitis complicated by acute aortic bacterial endocarditis is reported. The latter was superimposed on an old aortic valvulitis and resulted in rupture of an aortic cusp. The various types of meningitis, their therapy and prognoses are discussed.

Final diagnoses: (1) Pneumococcic meningitis; (2) acute aortic bacterial endocarditis; (3) old aortic valvulitis; (4) rupture of aortic cusp; (5) cardiac hypertrophy and dilation; (6) unresolved right upper lobar pneumonia; (7) left upper lobe pneumonia; (8) pulmonary edema; (9) bilateral hydrothorax; (10) chronic passive congestion of lungs and liver.

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PEDIATRIC-PATHOLOGICAL CONFERENCE

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Congenital Fibrocystic Disease of Pancreas

C. O. Kohlbry, M.D. and Arthur H. Wells, M.D.

DR. C. O. KOHLBRY: This thirteen-month-old male infant was admitted to the hospital almost two months before his death with a history of cough and slight fever of ten days' duration. Peculiarly large, pale, foul stools had been noticed for the last four months and probably from the time of birth. An older sister also had had unusually light bulky stools. She died of "virus pneumonia" the day before hospitalization of this child.

On admission he was severely emaciated, weighing 7,500 grams. The buttocks were shriveled and subcutaneous fat was missing. He had a fever of 101° with sticky moist rales heard throughout both lung fields, and there was a decided expiratory grunt. The cough was paroxysmal in type, greatly resembling that of pertussis. An x-ray examination of the chest was interpreted by Dr. A. L. Abraham as bilateral bronchopneumonia on the first examination. Subsequent pictures revealed very little as compared to the abundance of physical findings in the lungs at all times. The heart appeared unusually small. The child's temperature ran from 99.8° to 104° during the first forty-eight hours. During this time the white cell count was 16,600 and 22,100 with a moderate increase in the percentage of neutrophiles. The hemoglobin was 12.5 grams, the red cell count was 4,820,000 and the urine analysis was essentially normal. During his two months of hospitalization there were six periods of exacerbation and remission. This recurrence of fever reaching 102° to 104° and with exacerbation of other symptoms became more frequent and more severe as the disease advanced. Sulfonamid therapy with satisfactory blood levels of the drug was instituted for three periods. It appeared to be of some value but it was not deemed advisable to continue its use over too long periods of time. The child failed to gain weight and tended to follow a slow downhill course. Repeated cultures of the sputum revealed many organisms with streptococcus viridans predominating. Throughout much of the time the white count stayed in the immediate vicinity of 10,000 and there was a normal differential count. The hemoglobin and red cell counts were constantly in normal range. Intradermal 0.1 mg. tuberculin test was negative. Blood cholesterol was 157 mgs. There was profuse perspiration much of the time after admission. The severe coughing seizures resulted in decided cyanosis of a transitory type. The stools were constantly huge, sometimes greasy and offensive. There were large numbers of fat droplets present. Repeated attempts at isolating and finding tubercle bacilli in the stool and sputum were unsuccessful. There was no definite diarrhea at any time. No gram-negative bacillary pathogens were isolated from several stool cultures. The child was in such poor condition that further studies of pancreatic function were not attempted.

His diet was at first of low fat content. Later he was put on whole milk with Karo, orange juice, cereals, vegetables, eggs, bananas, beef and so forth. He took his feedings quite well. He was given plenty of vitamins including percomorph liver oil, 8 drops twice daily, carotene 10 drops, twice a day, B complex by mouth, vitamin B intramuscularly alternating with crude liver extract for over a month and finally 1 c.c. of Endo vitamin A intramsucularly in dosage of 50,000 units in each of two injections. The blood sulfadiazine and sulfamerazine levels were kept between 5 and 14 mgs. per cent for several weeks. Glucose in saline and Hartmann's solution were given subcutaneously as often as once daily for long periods of time. Three blood transfusions of 110 to 150 c.c. were given and injections of 20 to 40 c.c. of intravenous plasma were given on five successive days late in the course of the disease. Four small doses of x-ray therapy over the lungs amounting to 50 roentgen units each, appeared to cause some flare-up after the last treatment.

He gradually became weaker, his fever and coughing spells were more severe and during the last week he developed edema about the face, hands and feet. None of the therapy had any very important effect upon the course of the disease.

Autopsy Findings

DR. A. H. WELLS: The thirteen-month-old white male infant measured 74 cm. long and weighed 6,010 grams. There was practically no subcutaneous fat. A distinct mild edema was visible about the eyes, hands, and feet. Omental, retroperitoneal and mesenteric tissues were edematous but there was no free fluid in the abdominal or peritoneal cavities. The principal finding was a small 10 gram, firm pancreas of normal shape. Sectioning revealed a uniformly compact, firm, fibrous cut surface. Wirsung's duct had a rather thick wall and small lumen but a small probe passed through it freely into the papilla of Vater. There were three thin walled cysts measuring 0.8 cm. in diameter filled with clear watery fluid in the tail of the pancreas. There was no obstruction in the papilla of Vater. The two lungs had about 100 localized scattered small areas

of severe injection with grayish centers. A few of these contained frank pus. The remainder of the lung tissue was well aerated and mildly congested. Air passages had a diffuse injection and contained thick greenish-gray purulent matter. The heart (40 grams), thymus, adrenals and pituitary glands were rather small. No other cicatricial phenomena such as constrictions and cysts in the respiratory, urinary or biliary tracts were found.

Microscopic study: There is a uniformly diffuse severe fibrosis throughout all sections of the pancreas involving intra and interlobular areas equally. Practically all of the small ducts and the majority of the few remaining acini are dilated. The greater the dilatation the flatter is the epithelium. The few remaining acini are quite atrophic and misshapen. The fibrosis is of long standing and shows some hyalinization. There is no inflammatory cell infiltration whatever in any of the sections. There is no foreign matter in the acini or ducts. The duct of Wirsung is not dilated, in fact, its walls are somewhat wavy and irregular. Some of the larger ducts entering it have no dilatation. Islets of Langerhans have but slight change. The lungs have a severe bronchopneumonia with many pus cells in the smaller bronchi and surrounding alveoli. This reaction amounts to small abscess formation on occasions. A great variety of bacteria are found including staphylococci, streptococci, and gram-negative bacilli. No keratinizing metaplasia is found in the epithelium of air passages. However, occasionally the epithelial linings appear unusually thick, including extra cell layers which may be due to vitamin A deficiency.

DR. N. A. EIDSMOE: What is the difference between fibrocystic disease of the pancreas and celiac disease?

DR. KOHLBRY: Briefly, there is no apparent disease in the pancreas in celiac disease; in fact, the pancreatic enzymes have not been found deficient in this condition whereas in fibrocystic disease the condition is primarily a disease of the pancreas and the lack of pancreatic enzymes is of primary importance. In celiac disease the difficulty is primarily that of absorption of food through the intestinal wall. Factors contributing to this difficulty include an abnormal intestinal motility which does not properly mix and bring the food into proper contact with the intestinal epithelium; there may also be a factor in the ability of the intestinal wall itself to absorb products of digestion. Tropical and nontropical sprue are conditions somewhat similar to celiac disease and it has been found that an extrinsic factor contained in liver may improve these conditions.

DR. J. H. NEAL: What laboratory tests are useful in making the diagnosis of chronic fibrocystic disease of the pancreas?

DR. WELLS: An accurate quantitative analysis of lipase, amylase and sodium bicarbonate excreted into the duodenum following the injection of secretin is by far the best procedure. It has been found that from 30 to 80 per cent of the dried stool is composed of either neutral fat or fatty acids. The proportion of these two depend on the amount of lipase secreted by the stomach and duodenum in the individual case. The amount of neutral fat tends to be greater in pancreatic steatorrhea as compared with celiac disease but the test cannot be depended upon routinely to differentiate the two. The large size of the stools, their odor, gross appearance and the frequently visible droplets of fat are valuable signs particularly when the patient has been followed over a long period of time. One can find large amounts of fat with the sudan III test in the stool and much starch with the iodine test. The blood cholesterol tends to be low; in fact, this is said to be a necessary criterion by some authorities. Vitamin A absorption tests are said to reveal poor absorption. A barium meal by x-ray reveals an abnormal "clumping" of the meal due to a definitely altered peristaltic activity. There is also a therapeutic test in the response to the use of pancreatin, which has been described as of some diagnostic aid.

DR. KOHLBRY: In recapitulation pancreatic steatorrhea or congenital fibrocystic disease of the pancreas is a congenital, often familial fibrosis of the pancreas resulting in serious deficiencies in the excretion of its enzymes into the intestinal tract, thus interfering with the digestion and absorption of food, particularly fats, starches, fat soluble vitamins, especially vitamin A, and to some extent with the absorption of glucose. The child fails to develop properly in spite of the good itake of food. Practically 100 per cent of the patients suffer from recurrent chronic bronchitis or bronchopnemonia. This clinical phase of the picture may completely obscure the difficulty with digestion and absorption of food and thus hide the true nature of the patient's illness. The prognosis is very serious, since the majority die within the first year and most of the remainder are dead within five years. The oldest reported age to be attained was 14.5 years. Treatment consists briefly of a diet high in protein, moderately low in fat and free from starch. It must contain 30 to 50 per cent more calories than calculated for body weight. Pancreatin, vitamin A and other vitamins are important and much time must be spent in control of the respiratory infection.

TRANSPARENT PLASTIC USED TO PRESERVE HUMAN TISSUES

Human tissues, including small organs and embryos, can be preserved in a transparent plastic of the type used to replace glass in airplanes and many more familiar household objects. Details of this new method of preparing permanent, practically unbreakable specimens for study and museum exhibit are reported by Dr. Max M. Strumia and Dr. J. Ivan Hershey, of Bryn Mawr Hospital (*Science*, Feb. 4).

The original size, shape and texture are kept "to a remarkable degree," the scientists state, and the color, though less brilliant than originally, may also be satisfactorily preserved.

The specimen to be preserved is first dehydrated at freezing temperatures and then saturated under vacuum with the liquid acrylic ester (monomeric ethyl methacrylate). Final steps consist in polymerization and, if desired, cutting and polishing the block for a more finished product.—*Science News Letter*, February 12, 1944.

HISTORY OF MEDICINE IN DODGE COUNTY

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(Conclusion)

Dr. James McPeek (1852-1922) was born in Indianapolis, Indiana, on March 5, 1852, the son of Thomas McPeek and Sahara Barto* McPeek.[385] His father was a native of Indiana and his mother was born in Maine of French Huguenot stock. Both came to Olmsted County in Minnesota in about 1855, and settled on a farm near Byron, where Doctor McPeek was reared. The young man attended the public schools of the county, and on December 24, 1875, at Byron, he was married to Miss Ruth Ann Stevens, who died in 1891. After his marriage Doctor McPeek attended the old Keokuk College of Physicians and Surgeons in Iowa, from which he was graduated in 1889. He was licensed to practice medicine in Minnesota at an unknown date,[40] which would indicate that he had been practicing medicine long before he obtained the degree of Doctor of Medicine in 1889, since the licensing law of Minnesota dates from 1883.[95]

Doctor McPeek spent a considerable part of his professional career at Canby, in Yellow Medicine County; but on May 25, 1889, he received a license to practice medicine in South Dakota, and he established a practice at Gary in that state.[72] In September of 1893 he was married to Mrs. Bessie R. Eakins of Gary, and by that time he was living in Canby. He had been living in Saint Charles in Winona County when in September of 1898 he decided to locate in Kasson.[165] He seems to have remained in Kasson for only about a year, for in March of 1899 it was said that he planned to go back to South Dakota.[372] In April of that year he finally moved to Sleepy Eye in Brown County.[386] The Division of Birth and Death Records and Vital Statistics of the Minnesota Department of Health[330] has evidence that Doctor McPeek was health officer of the town of International Falls in 1903, but the writers do not know about this part of his career. In 1906 he was in Gary, South Dakota, again, and in 1912 he was in Breckenridge, Minnesota, where he was local surgeon for a railway company. Toward the end of his life Doctor McPeek lived at Ranier, on Birch Point, Rainy Lake, in Koochiching County, Minnesota.

Doctor McPeek died of erysipelas of the face at the home of his daughter, Mrs. Stephen Trageser, in Minneapolis, on December 24, 1922.[385] He was buried at Byron, Minnesota.

*Originally "Barteau."

Dr. N. Clausen Thimsen (1871-) was born of Steele County pioneers, N. P. Thimsen and Hannah Jensen Thimsen, of Blooming Prairie, on June 28, 1871.[387] He was reared on the farm of his father, who came to what is now Steele County in 1862 and was a well-known veteran of the War of the Rebellion. He was sent to a district school in Steele County for his primary education. He later attended Pillsbury Academy at Owatonna, from which he was graduated. In 1895 he was married to Miss Mary Haugen, of Blooming Prairie. Doctor Thimsen was graduated with honors from the Keokuk Medical College at Keokuk, Iowa, on March 15, 1898, and on May 12 of the same year he was licensed to practice medicine in Iowa under Certificate No. 6121.[264] He practiced for a short time at Cedar Rapids, Iowa, but soon located at Hayfield in Dodge County. On October 11, 1898, he was licensed to practice medicine in Minnesota under Certificate No. 960.[40] Doctor Thimsen remained at Hayfield for fourteen years, where he became local surgeon for the Chicago and Great Western Railway Company and health officer of Hayfield. He was president of the Dodge County Medical Society in 1909 and 1910. "His large and increasing practice in the four counties, Dodge, Steele, Mower and Olmsted, attest to his skill as a conscientious physician," it was written[387] of him while he remained at Hayfield. In July of 1913 Doctor Thimsen moved to Blooming Prairie in Steele County,[388] where he experimented with a fox farm in addition to practicing medicine. In 1928 or 1929 he moved to a site north of Stillwater, Minnesota, where he has since owned and operated the Superb Fox Ranch on Rural Route No. 2. There Doctor Thimsen breeds and rears blue foxes, Alaskan foxes and silver foxes.

Dr. Anthony N. Sorenson (1875-1901) was a native of Dodge County. He was born at Claremont on November 21, 1875, the son of Oscar C. F. Sorenson and Maren Christina Peterson Sorenson.[389] His father was a veteran grist miller of Dodge County. Doctor Sorenson was educated at the grade school in Mantorville, and was graduated from the Kasson High School in 1895. He then entered the University of Minnesota College of Medicine and Surgery, from which he was graduated in 1899. On June 22, 1899, he received License No. 1074 from the Minnesota State Board of Medical Examiners,[40] and in July of the same year it was announced[167] that he would take the place of Dr. Lewis L. Mayland (1871-) at Hayfield in Dodge County. In August of that year it was reported[390] that Doctor Sorenson had made the trip from Kasson to Hayfield on bicycle, and Doctor Mayland[160] has said that Doctor Sorenson assisted him in several surgical operations before he (Mayland) left Hayfield. He remembered Doctor Sorenson as a "prince of a fellow."[160] Once he was established in Hayfield, Doctor Sorenson began the practice of his profession, and he soon had many friends in the village and surrounding countryside, where, as a matter of fact, his family had been known for years. He was liked and respected by his colleagues in the region, and is known to have attended at least one session of the Olmsted County Medical Society,[391] but he soon decided to locate elsewhere. On October 11, 1900, he was licensed to practice medicine in South Dakota,[72] and he settled at Oldham in that state. After a particularly severe winter, during which he traveled laboriously over bad roads in wretched weather, Doctor Sorenson was afflicted with pneumonia, from which he never recovered. He was returned to his home at Kasson, and there he died on July 6, 1901.[392,393] He was known as an accomplished violinist and pianist, and it was said that at one time he had seriously considered the prospect of abandoning medicine for a career in music.

Dr. Edward Henry Kerkhoff (1872-1918), as has been said previously, was in Kasson for a short while in the year 1899; but he did not remain there long; certainly not long enough to establish a practice there. It was suggested that after he left Kasson he went to Plainview, but if he did, he likewise did not remain there long, as will be shown.

Doctor Kerkhoff was born on May 13, 1872, on a farm in Spring Hill Township, in Stearns County, Minnesota, some eight miles from the town of Melrose.[394] He was the son of a farmer, Conrad Kerkhoff, a native of Lippstadt, Westphalia, Germany, and Catherine Horner Kerkhoff, a native of Stuttgart in Württemberg, Germany.[394] Doctor Kerkhoff's mother and father had come to the United States at an early time, and had come to Minnesota from Wisconsin. In 1884 the Kerkhoff family moved to Melrose, and there the boy went to school. For a time he devoted himself to the study of telegraphy, but in 1894, according to his widow,[394] he decided to study medicine. He then enrolled in the old Hamline University Medical Department (Minneapolis College of Physicians and Surgeons), from which he was graduated in 1899. A year previously, on June 16, 1898, he had been licensed to practice medicine in Minnesota.[40] He completed his internship at the Minneapolis City Hospital, as it was then called. It seems certain that Doctor Kerkhoff went to Pierz only a short while after he left Kasson, for his widow[394] has reported that he began to practice medicine in Pierz on December 19, 1899. In 1904 he was married to Miss Rose Vorath, a native of Agram Township in Morrison County, some five miles from Pierz. Two children were born to them.

In 1906 Doctor Kerkhoff moved to Richmond in Stearns County, but at the end of a year he was back in Pierz, where he remained until his death. There he practiced medicine, served as editor of the *Pierz Journal*, and interested himself in farming. He was known as a keen, tireless physician who drove himself without surcease in the care of his patients. He was said[394] to be exceptionally well read, conversant with many branches of knowledge outside the practice of medicine. It was, in fact, his devotion to his patients which in a large measure contributed to his death. He had been ill for several weeks in the fall of 1918, but had insisted on seeing and caring for his patients. This was at the height of the pandemic of influenza of the first World War. Doctor Kerkhoff soon fell victim to the disease. Pneumonia complicated the influenza, and he died in Pierz on November 15, 1918,[395] at the relatively early age of forty-eight years.

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WAGNER-MURRAY BILL

The American Bar Association has released the report of its special committee to study the portions of the Wagner-Murray Bill relating to federal control and regulation of medical practice and hospitalization. This report considers in detail the provisions and implications of S. 1161, and fills thirty-five double-spaced typewritten pages.

The following summary has been taken from the last two pages of the report:

Conclusion

The American Bar Association is limited to an expression of opinion and judgment with respect to those fields which relate to the administration of justice and which directly affect the safeguards and protection of the rights and liberties of the citizens of this country. Under normal circumstances, therefore, it is not the function of this Association to attempt to influence substantive legislation by the Congress of the United States. But when under the pretext of the general welfare legislation is proposed in Congress which either inadvertently or with deliberate subtlety constitutes a direct attack on the rights and liberties of the citizens of this country, it becomes the duty of this Association actively to voice its objections, a summary of which is as follows:

1. Local self-government must be preserved in our federal system. State governments directly responsible to the will of the people are best adapted to exercise such supervisory control as may be instituted over the health and medical care of our citizens.

2. S. 1161 seeks to invest in the Surgeon General who is not an elected servant of the people and who is not amenable to their will the power arbitrarily to make rules and regulations having the force and effect of law which directly affect every home.

3. The measure furnishes the instrumentality by which physicians for their practice, hospitals for their continued existence and citizens for their health and that of their families can be made to serve the purposes of a federal agency.

4. The bill fails to safeguard the rights of patients, citizens, hospitals or doctors with respect to disputes arising or rights denied through the arbitrary or capricious action of one man.

5. The bill fails to provide for any appeal to any court from the action of the Surgeon General.

6. The vicious system whereby administrative officials judge without court review the actions of their subordinates in carrying out orders issued to them is extended in this bill to a point foreign to our system of government and incompatible with the adequate protection of the liberties of the people.

The Constitution of the United States is designed to protect the citizens of this republic in the exercise of the rights of free men. The provisions of that instrument can be rendered impotent, when our citizens, for the sake of an apparent immediate benefit, surrender to their government such direct control over their lives that government, by imposing a constant fear upon them of having those benefits withheld or withdrawn, can compel from them obedience and subservience to its dictates.

President's Letter

The program of the 91st Annual Meeting of the Minnesota State Medical Association at Rochester, April 13, 14 and 15, is printed elsewhere in this issue. It may be recommended to every member of the Association as a program of value and distinction which he can ill afford to miss, no matter how busy he may be with wartime practice.

Vice-Admiral Ross T. McIntire, Surgeon General of the Navy, and a group of well-known, out-of-state speakers will be there. There will be special sessions arranged by the Academy of Ophthalmology, by the American College of Chest Physicians and by a group of orthopedists and fracture surgeons. There will be a program of scientific motion pictures and demonstrations and a series of surgical clinics at the Rochester hospitals. Round-Table Discussion Luncheons are scheduled for Friday noon and the annual banquet will be Friday evening at the Rochester State Hospital.

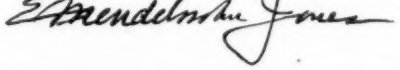
On the lighter side is the Open House, at which the Olmsted-Houston-Fillmore-Dodge County Medical Society and the State Association will be hosts Thursday night, in the Arena and Theater of the Mayo Civic Auditorium. Also the usual reunions, scheduled and unscheduled, which make a state meeting an occasion especially to be planned for and remembered.

The Minnesota State Medical Association and its county units are playing a larger and larger part in the public affairs of the state. They function as an integral part of the state welfare program and are already scheduled to assume a comparable responsibility in the operation of the new physical rehabilitation program in the state. They are undoubtedly destined to play an even more important role in all future social movements having to do with health and public welfare. If they do not, it will mean that medicine will shortly abdicate its position as arbitor of methods and standards of practice.

Policies and programs having to do with these problems will be mapped for the coming year by the House of Delegates at its pre-meeting sessions, Wednesday, April 12.

It is highly important that every delegate prepare himself for these deliberations by careful reading of committee reports in advance of the meeting, and that he take an active part in discussions. Others are invited to attend the sessions and participate.

These are critical times for all of us. The interest we take now in our own organization may make all of the difference in our freedom from hampering regulations in the days to come.



President, Minnesota State Medical Association.

Editorial

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

STATE MEDICAL MEETING

MEDICAL meetings feel the effect of the war just as every other activity does. Some national societies have had to curtail certain phases of their meetings or have even suspended meetings entirely for the duration.

Not so with our State Meeting this year, as a perusal of the program will prove. The session will be condensed into two days and a half instead of the full three days. The special sessions and surgical clinics will be held at the same time as the general sessions with the disadvantages of a three-ring circus. The scientific exhibits will be nearly up to normal in number, whereas the technical exhibits number more than ever before.

For those who are particularly interested in surgery, the daily surgical clinics being offered by the Mayo Clinic surgeons should prove of interest and value. The specialist in ophthalmology and otolaryngology, in orthopedics and diseases of the chest will find the special sessions attractive. For the rest of us, the Program Committee has covered the surgical and medical fields well, has not forgotten x-ray and obstetrics, and has included subjects of more recent interest such as chemotherapy and tropical diseases. The Committee, with the assistance of various societies, has arranged for the participation of ten or more prominent out-of-state members of the profession, an arrangement which is stimulating and tends to prevent provincialism.

In spite of having responsibilities at home and difficulties in travel every member should do his best to be at Rochester, April 13, 14, and 15. A few days away from the grind is prescribed at times by us all. Let us take our own prescription.

VOLUNTARY—NOT COMPULSORY SICKNESS INSURANCE

IF the purpose of the submission of the Wagner-Murray Bill to Congress last June was to bring up the question of Federal administration of medical care for discussion, that purpose has been attained. The medical profession, convinced that any such bill would put an end to private practice and would be fatal to American medicine, has been vociferous in its condemnation.

It is a matter of satisfaction to see that other interests in the country have become aroused by this bill. The legal profession, which claims that normally it is against its policy to influence legislation, was so aroused that the American Bar Association appointed a committee to analyze the bill. This committee report* should be read by every physician, for state medicine is likely to continue to be a vital subject although this particular bill, according to reports, is not likely to be passed at this session of Congress.

This analysis by the committee of the American Bar points out that on the basis of employment and income in 1942, the bill would provide $2,339,000,000 for the medical care and hospitalization of some 60,400,000 employed and self-employed individual and their families. Approximately 3,000,000 Federal employes would not be included, as they have already provided these services for themselves. The only individuals left in the field of private practice would be the unemployed who, it is safe to assume, will be increased after the war. Only thirty days of hospital care would be provided for each one insured, except by special dispensation by the Surgeon General of the United States Public Health Service. No provision is made for dental care. The cost of the medical and hospital care of the indigent is not provided for in the bill, and other taxes and the charity of the profession would have to be relied upon for this service.

This analysis comes to the conclusion that this bill, if enacted, would put an end to private practice as we know it today. Doctors would become unambitious federal employes or would be only politically ambitious. To safeguard a small percentage of the population which has difficulty in obtaining complete medical service for unusual and prolonged and therefore expensive medical care, this bill would institute federal administration of

*Committee of American Bar Association report on parts of Wagner-Murray Bill relating to Federal regulation of medicine. J.A.M.A. 124:716 (Mar. 11) 1944.

medical care which the majority of the population do not require or are able to provide for themselves. The report explains further that the bill will lessen the interest of the physician in his patient and will dull incentive. Medical education would be subsidized, regulated, and controlled by the Federal Government. The Surgeon General of the United States Public Health Service, not an elected servant of the people, would arbitrarily make rules controlling physicians, patients, and hospitals, no provision being made in the bill for safeguards such as court appeal in case of disputes.

This interpretation of the Committee of the American Bar Association to the bill simply supports the opinion of the medical profession in their opposition.

Is it true that the American public wishes this Wagner-Murray Bill passed? If the A.F. of L. and C.I.O. favor the bill, it might be presumed that the public at large also favors its enactment.

In this connection the information gleaned from a survey made by the *Opinion* Research Institute for the National Physicians Committee is illuminating. According to this survey, instead of a large majority demanding provision of medical care by the Federal Government, only 21 per cent of the people interrogated had heard of the proposal; when explained, only 32 per cent of the people approved, and half of these changed their minds when the 6 per cent deduction from payrolls was explained—not evidence of a demand for Federal bureaucratic medicine. As a matter of fact, the medical profession can take some comfort in their standing with the public as determined by this survey. In brief, the survey showed that the majority of people have confidence in their personal physicians, demand the right to choose their medical advisors, disapprove of control of the medical profession by the Federal Government, oppose the fixing of physicians' fees, paying the expenses of medical students, and limiting the choice of physicians by the National Government.

Perhaps the most important information obtained by this survey was the indication that there is a desire on the part of the public to participate in plans for insuring against the cost of illness, especially expensive illnesses. This is primarily an insurance problem, but merits the coöperation of the medical profession and employers. And here we come to two schools of thought: (1) that insurance against cost of sickness should be voluntary and not compulsory; (2) that the government should help citizens to help themselves rather than to make life easy for them. People are becoming more insurance-minded as time goes on. No house owner would think of omitting fire insurance. The majority carry life and automobile insurance. The rapid growth of hospital insurance indicates a widespread recognition of its value. Any insurance, however, (sickness included) has to be sold, and it has to be available at a reasonable price. The combined efforts of all concerned should solve this problem by means of voluntary sickness insurance and not by compulsory government insurance with bureaucratic control in Washington.

GIFTS FOR MEDICAL RESEARCH

THE Medical School recently received two substantial gifts for cancer research from citizens of this state. In the one case, the donor was encouraged and aided by his family physician in making this gift. In fact, his physician brought him to the Medical School to discuss the need for and the use which might be made of his gift.

In the other case, the check was received by mail with a note which merely stated that the gift was to be used for cancer research. A note of appreciation to the donor brought the following reply: "I am glad to receive your letter for I had really wanted to write when I mailed the check but didn't want any special attention given to the gift or to myself. The reason that prompted the gift was that both of my parents died from cancer and we, as children, wanted to give money in memory of them, but didn't agree on any place to give our money. I had told our family doctor quite some time ago that I wished to donate money for cancer research but he didn't advise me of any special place. I also told our minister who talked to a physics professor at the University and wrote a note to a medical student at the University, who gave us your name and explained several ways of donating money for cancer research."

If our Medical School is to maintain its enviable position in the fields of medical education and in medical research, it must have the inter-

est, the understanding and the support of the physicians of the state.

I know of no medical school of comparable standing which operates on so limited a budget. It is, therefore, of special importance that gifts for support of its work be secured. Members of the medical profession of the state are in a unique position to assist in the procuring of such gifts.

HAROLD S. DIEHL

APRIL—CANCER CONTROL MONTH

THE month of April will again be observed as Cancer Control Month in the United States. It has been proclaimed so by our President as authorized by Congress. During this month, the Women's Field Army of the American Society for the Control of Cancer will conduct its annual enlistment and educational campaign. Some 300,000 have already joined.

The publicity undertaken by the American Society for the Control of Cancer can scarcely be overdone. Cancer to be cured must be diagnosed early. In spite of the great amount of publicity on the importance of consulting a physician for signs possibly indicating the presence of cancer, physicians not infrequently encounter patients who have observed symptoms which have aroused suspicion of the possibility of malignancy but have procrastinated in the hope that the symptom would disappear and the favorable time for cure had passed. Doubtless cancer phobias have been created in the minds of many over-timid individuals by so much cancer publicity. However, fear of cancer never killed anyone, and early recognition of cancer symptoms has saved many lives.

CORRECTION

At the request of the authors of the Report on Biologics and Laboratory Diagnosis of Infectious Diseases published in the March issue of MINNESOTA MEDICINE, we are pleased to make the following corrections:

Under the heading of Pneumonia, the item *Incidence in Minnesota* should read: The figures for pneumonia for 1943 are unavailable at this time. The pneumonia figures for 1942 were: 3,417 cases with 1,325 deaths.

Under the heading Tuberculosis, the item *Incidence in Minnesota* should read: 2,405 cases with 753 deaths in 1943.

Both items appeared on Page 198 of the March issue.

Chemotherapy, the treatment of infectious diseases with specific chemicals, originated in the 16th century, when the beneficial effect of mercury in the treatment of syphilis was discovered.

REPORTS and ANNOUNCEMENTS

MEDICAL BROADCAST FOR APRIL

The following radio schedule of talks on medical and dental subjects by William A. O'Brien, M.D., Director of Postgraduate Medical Education, University of Minnesota, is sponsored by the Minnesota State Medical Association, the Minnesota State Dental Association, Minnesota Hospital Association and University of Minnesota School of the Air:

April 1— 9:15 a.m.	(WCCO)	Nature of Cancer
April 1—11:30 a.m.	(KROC-WLB)	Medicine in the News
April 5—11:00 a.m.	(WLB)	Health Fads
April 8— 9:15 a.m.	(WCCO)	Cancer Research
April 8—11:30 a.m.	(KROC-WLB)	Medicine in the News
April 12—11:00 a.m.	(WLB)	Advertising and Health
April 15— 9:15 a.m.	(WCCO)	Cancer in Women
April 15—11:30 a.m.	(KROC-WLB)	Medicine in the News
April 19—11:00 a.m.	(WLB)	Alcohol and Tobacco
April 22— 9:15 a.m.	(WCCO)	Cancer in Men
April 22—11:30 a.m.	(KROC-WLB)	Medicine in the News
April 24— 4:30 p.m.	(WCCO)	Your Hospital in Wartime. An Educational Institution
April 26—11:00 a.m.	(WLB)	Prevention of Communicable Diseases
April 29— 9:15 a.m.	(WCCO)	Cancer of the Mouth
April 29—11:30 a.m.	(KROC-WLB)	Medicine in the News

WASHINGTON COUNTY MEDICAL SOCIETY

The regular meeting of the Washington County Medical Society was held on Tuesday, March 14, and, in spite of the bad weather, was well attended. Unfortunately, the guest speaker for the evening was unable to come, but promised to come to the next meeting in April. A report of the County Officers' Meeting in Saint Paul was made, followed by committee reports. The meeting was enlivened by the presence of Mr. C. W. O'Brien, Executive Secretary of the Washington County Welfare Board, who reported and asked support for a new method of handling medical bills for the aged.

OCCUPATIONAL THERAPISTS NEEDED

There is an increasing need for occupational therapists in Army and Veterans' hospitals in connection with the rehabilitation of wounded soldiers. In greatest demand are experienced graduates of accredited occupational therapy schools. For some positions, however, college training in psychology and in arts and crafts or trades and industries is required.

The salary range is $1,970 to $2,433 a year. Those appointed at the lower salary will be trainees for a period of eighteen months. There are no age limits nor written tests, but applicants must be physically capable of performing the duties involved.

Further information may be obtained from first and second class post offices or from the United States Civil Service Commission, Washington 25, D. C.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

PREPAYMENT PLANS IN MINNESOTA

Reports from the recent Chicago conference of executives in prepaid plans for medical service showed that the principle has proved, on the whole, practical and that subscriber lists are growing. Several have weathered financial crises and corrected blunders. All may be said to be still in the experimental stage and changes in method may be expected from time to time. But these pioneer efforts are justly presented, as exhibit number one, in support of the thesis that medical men are not conservative diehards, but rather are in the forefront of experimentation with new social ideas and methods. They show, also, that voluntary plans may serve to ease financial burdens without laying upon medical service the heavy hand of government control and bureaucratic regulation.

It is true that the Minnesota State Medical Association has not yet embarked upon sponsorship of any comparable plans in Minnesota. At the same time, it has given its coöperation and approval to a joint experiment with the Farm Security Administration for FSA clients in three counties of the state.

Abuses Neglible

This experiment has now been in existence for two and one-half years and some interesting observations and figures on its operation were presented at the County Officers' Meeting in February by Dr. E. J. Simons of Swanville, chief of the Medical unit of the Division of Social Welfare who participated in the plan in Morrison county.

Certain difficulties which have plagued many such coöperative ventures seem to have been of small consequence in Morrison and Ottertail counties, according to Dr. Simons' report. The plan in Wilkin county, the third one approved for the purpose by the Council, is now under development to replace the Mille lacs county plan which lapsed and is no longer in operation.

In neither Morrison nor Ottertail counties have serious abuses of the service developed, either on the part of subscribers or of participating physicians. This is in contrast to experience of a number of plans elsewhere.

Family Participation Small

The most significant observation made by Dr. Simons on the basis of figures presented from both counties was the fact that never, at any time, has the percentage of subscribers among eligible families reached even the minimum of 75 per cent originally promised by FSA officials. The largest percentage at any time was 67 per cent in Ottertail county in 1942, representing 183 out of 271 eligible families. The percentage for the first year of the plan in Morrison county was 46.7. For the second it was 48.6 but for the first half of the third year it is only 40 per cent.

This circumstance led the participating physicians, at the end of the second year, to point out that 66.6 per cent of eligible families should be enrolled, but that an absolute minimum of 100 families was necessary to assure reasonable expectation of financial solvency. As a result, 129 families were persuaded by FSA officials to subscribe for the current year.

Selling Job Needed

The reason for lack of enthusiasm for the service on the part of FSA families was not discussed by Dr. Simons; but it is probable that here, as in other communities where prepaid service has been offered, a more intensive selling job was needed.

It is clear that health insurance or prepaid medical service is no more likely to sell itself than life insurance. Many people accept the idea as reasonable and would readily reply to a poll—

as they often have—that they would like to have the opportunity of spreading medical costs on an insurance basis. But when it comes to laying out funds in advance, they are likely to consider that their own private risk of immediate illness, is, after all, small, and they could use the money more pleasurably elsewhere. The gap between a pleasant theory and the unpleasant fact involved in giving up real money for an uncertainty has to be bridged by a selling campaign. Life insurance companies have worked hard and spent huge funds on the problem of selling life insurance. Yet only a percentage, though a growing percentage, of the population is adequately protected. Backers of prepayment medical plans, even when they are on a strictly nonprofit basis, must anticipate similar difficulties.

Voluntary Plans Have Advantages

The attraction of a compulsory government plan, financed out of tax funds, lies in the very fact that selling is thus eliminated and costs are so hidden in taxes that the average person feels he will get benefits without paying for them.

On the other hand, selling difficulties should not be allowed to stand in the way of continued experimentation under medical society sponsorship. It is imperative that the way be opened for independent and far-sighted people to budget for medical service on an insurance basis and it is quite possible to show the advantages of voluntary action over increasing government control. The immediate personal advantage of excellent service without red tape or interference, which is possible only in voluntary privately managed enterprises, is capable of demontration.

It may take many years to reach the whole population with such protection; but it will take only a few years under government control for medical service to become of small worth, no matter how wide the coverage. It seems certain that nothing but a vigorous effort on the part of all who cherish private enterprise and the independent practice of medicine will prevent government insurance from becoming a fact, if not this year, then the next, or the next.

America Stands Alone

America now stands almost alone among the great nations of the world in its freedom from government controlled compulsory insurance for medical service. American doctors must therefore not count on an easy job nor on one short legislative fight, to maintain that position.

Actual returns to participating physicians in the Morrison and Ottertail county plans were slightly less, on a percentage basis, than the returns from caring for a like number of relief families using the same Minimum Allowance Schedule of the Division of Social Welfare which is in use in the majority of the counties. On the other hand, a study of medical services showed that 219 FSA families paid $3,300 for medical care in the first year under the plan, while 231 nonparticipating families on the same income status obtained only $400 worth of care in the same year for which $200 was paid to the physicians.

Thus a considerable number of families received much better service than they would have received without the plan and the physicians received a return from a source where little or none could have been expected.

At their request the premium was raised, at the end of the second year, from $23 to $30 for each family; but no figures are available as yet as to experience with the new premium. It is the doctors' conclusion, however, based upon experience in the first two years, that the plan presents many worth-while and desirable features.

REHABILITATION

The following information about the new federally aided program of physical rehabilitation was brought to the county officers at the February meeting by Dr. Dean A. Clark, chief medical officer in charge of the new office of physical rehabilitation in the Federal Office of Vocational Rehabilitation in Washington.

This is a state program to be supported jointly by state and federal funds, with the federal government participating on an advisory but not a regulatory capacity.

No Limit on Appropriations

No limit has been set upon amounts to be appropriated. The federal government will pay 50 per cent of costs for rehabilitation of civilians suffering from static or slowly progressive disabilities which interfere with employment and who are in need of assistance. The beneficiary need not, however, be on relief. The government will pay complete costs for the war disabled civilians and federal employes, (disabled

veterans are provided for in other legislation), and will pay total administrative costs in all categories. Mental disease will be included.

The objective, however, is primarily a vocational rehabilitation program in which physical restoration is but one factor. Vocational programs have been operating here and elsewhere for some time, but no funds have been available for physical rehabilitation.

Minnesota Men on Committee

Federal funds cannot be used, however, for more than 90 days treatment though the states are at liberty to pay for longer treatment if they wish to do so.

As a general rule, general medical care is not available during vocational training. But each case will have a general physical examination, even when no restoration is contemplated, and such specialists' services as are indicated.

Federal participation is administered by the new physical rehabilitation office in the Federal Office of Vocational Rehabilitation of the Federal Social Security Agency, of which Michael Shortly is director. Two medical officers, one in charge of medical and the other of hospital services, administer the office (Dr. Clark being director for medical services). Later there may be a medical social worker, an occupational therapist and an expert in prosthetic services in the office. There are eight representatives in various sections of the country in charge of federal aspects of both educational and medical programs, the purpose being to close the gap between the states and Washington. John Lasher is the representative for this section, with headquarters in Minneapolis. There is also a national medical advisory committee of 20, most of whom are specialists in many fields relating to rehabilitation. Two Minnesota men, Dr. Horace Newhart of Minneapolis and Dr. E. S. Mariette of Oak Terrace, are members.

Medical Advisory Committee Will Be Used

In addition, each state office must have advice from state bodies and consultants. For this purpose the Council has approved use of the State Medical Advisory Committee of the Division of Social Welfare and the county medical advisory committees.

Parts of the program which cannot be operated at the moment under state laws may be operated completely with federal money up to July of this year.

"I congratulate you in Minnesota," Dr. Clark told the county officers, "that you are planning to utilize the medical advisory committees already set up to serve with the Division of Social Welfare. You will thus be assured of a unified program and the services of the committees will be available without trouble and loss of time to the office of Vocational Rehabilitation in the Department of Education under which the program will operate here.

"I hope other states will model their arrangements on the Minnesota plan and I shall point to it with pride in the hope that we may have similar medical plans in the other states."

SCHOOL HEALTH

Minnesota school executives, under stimulus of their new state commissioner of education, Mr. Dean A. Schweickhard, have developed an extensive plan of health education which should fill a serious gap in elementary education and correct some well-meaning mistakes of the past.

Time was, not so long ago, when health education in the schools was mostly a matter of urging the children to brush their teeth, while at the same time, the child with a cold or fever was applauded if he helped to maintain a perfect attendance record by coming to school as usual.

Dean Schweickhard's plans were competently outlined to county officers at their February meeting. The assistance and understanding of physicians in developments in the schools of their own communities was asked and will certainly be given.

In the plan which Minnesota schools are working hard to establish, teachers as well as school nurses, are to make regular health inspections of their classes. They are to be taught to watch for common indications of illness, physical defects or maladjustments and to report them promptly to the family physician.

Physicians to whom the child may then be referred can do much, not only to aid the child, but to help the schools in their endeavors, by giving careful attention to reports from school authorities. They should be ready to coöperate wholeheartedly in improving health conditions within the school and in supervising and standdardizing their teaching about health practices.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

J. F. DuBois, M.D., Secretary

Minneapolis Woman Pleads Guilty to Practicing Optometry Without A License

Re: State of Minnesota vs. Delia Ann Coose

On March 9, 1944, Mrs. Delia Ann Coose, forty-six years of age, Apartment 30, 36 Spruce Place, Minneapolis, entered a plea of guilty in the District Court of Hennepin County to an information charging her with the crime of practicing optometry without a license. The Hon. Levi M. Hall, Judge of the District Court, sentenced Mrs. Coose to pay a fine of $50.00 or to serve twenty days in the Minneapolis Workhouse, the sentence being stayed for one year on the express condition that the defendant refrain, in every manner, from practicing healing, medicine or optometry.

The investigation in the instant case was conducted by the State Board of Optometry, who after ascertaining from the State Board of Medical Examiners that the defendant did not have a license as a physician in Minnesota, proceeded to secure the necessary evidence to warrant a prosecution of the defendant. This evidence disclosed that the defendant advertised as follows in the *Minnesota Daily* at the University of Minnesota:

> "Better vision without glasses.
> Teacher of Bates Method. For
> appointment phone Ma. 7397."
> Minnesota Daily, January 11, 1944.

Mrs. Coose charged $3.00 for her services for each visit of the patient. Her services consisted of prescribing eye exercises. On February 29, 1944, a criminal complaint was signed by the President of the State Optometry Board. The defendant was arrested on March 1, and held in jail over night until she was arraigned in the Municipal Court. She was subsequently released on $500.00 bail after entering a plea of not guilty. Her trial was set for March 9, on which date she withdrew her plea of not guilty and entered a plea of guilty.

The defendant told the court that she came to Minneapolis about year ago from Massachusetts, and that she had a certificate authorizing her to use the Bates Method of eye exercises. Judge Hall cautioned the defendant that she had no legal right to engage in the practice of optometry, medicine or healing until she had first complied with the various laws of this state.

Saint Paul Physician Sentenced to 180 Days in Minneapolis Workhouse

Re: State of Minnesota vs. John Henry Spearing, Jr.

On March 15, 1944, Dr. John Henry Spearing, Jr., thirty-two years of age, residing at 809 Cleveland Avenue South, Saint Paul, was sentenced to a term of 180 days in the Minneapolis Workhouse following Dr. Spearing's plea of guilty to a charge of careless driving and driving without a license in his possession. Dr. Spearing was arrested about 1:30 A.M., March 1, 1944, following a traffic accident at Third Avenue South and Fifth Street, Minneapolis, several persons being injured in the accident. Dr. Spearing was released on $125 cash bail, but failed to appear in court on March 8, when his case was called, with the result that Judge Earl J. Lyons ordered the bail forfeited and a bench warrant issued for Dr. Spearing's arrest. When Dr. Spearing was ordered into court on the bench warrant, he obviously was not in any condition to stand trial. The court ordered him taken to the Minneapolis General Hospital for observation and the case was continued for one week. On March 15, Dr. Spearing entered a plea of guilty to both charges.

In view of Dr. Spearing's previous criminal record, including ten arrests and convictions for drunken driving, drunkenness, drunk and disorderly conduct, Judge Lyons could hardly have been expected to impose any other sentence. Before sentencing the defendant, Judge Lyons stated that the medical profession is, perhaps, the most noble of all the professions, but that a certain few individuals, such as the defendant, through the excessive use of liquor, constantly chip away at the monument built by the honorable members of the profession. Judge Lyons stated that after the defendant had served sixty days, he could apply to the court for a parole from the balance of the sentence.

The Minnesota State Board of Medical Examiners has issued a citation requiring Dr. Spearing to show cause why his license as a physician should not be revoked. Dr. Spearing was licensed on July 10, 1942, on reciprocity with Wisconsin. Prior to being licensed, Dr. Spearing was called before the Medical Board and warned that his drunkenness must cease and that his escapades would not be tolerated in Minnesota. He stated to the Board at the time that his difficulties were domestic rather than liquor. Subsequent developments would indicate that Dr. Spearing erred slightly in his explanation. The motivating factor in licensing Dr. Spearing was the War Emergency and the desire of a large munitions manufacturer to employ Dr. Spearing with full knowledge of his previous record at Milwaukee. Under those circumstances, Dr. Spearing's license was granted with the above-mentioned warning.

Minneapolis Physician Pleads Guilty to Abortion and Surrenders Medical License

Re: State of Minnesota vs. Orel A. Kibbe

On March 8, 1944, Orel A. Kibbe, M.D., 4316 Upton Avenue South, Minneapolis, entered a plea of guilty in the District Court of Hennepin County, to an information charging him with the crime of abortion. Dr. Kibbe, sixty-three years of age, surrendered, in open court, his medical license and his basic science certificate with a written request that they be cancelled by the Minnesota State Board of Medical Examiners and the State Board of Examiners in the Basic Sciences, respectively. Following the surrender of Dr. Kibbe's medical license and basic science certificate the Hon. Levi M. Hall, Judge of the District Court, imposed a sentence of not to exceed four years in a state penal institution and stayed the execution of the sentence for a like period of time upon condition that Dr. Kibbe absolutely refrain from practicing medicine in any manner, and also refrain from doing any abortions. Dr. Kibbe was warned by the court that if he violated the conditions of the stay, the court would summarily revoke the stay and the sentence would have to be served.

Dr. Kibbe was arrested on February 28, 1944, following a lengthy investigation into Dr. Kibbe's activities by the Women's Bureau of the Minneapolis Police Department and the State Board of Medical Examiners. Evidence was obtained that Dr. Kibbe had performed a considerable number of abortions for fees ranging from ten to thirty-five dollars each. On March 1, 1944, Dr. Kibbe waived a preliminary hearing in the Municipal Court of Minneapolis and was held to the District Court. On the same date Dr. Kibbe was arraigned in the District Court, entered a plea of not guilty and was released upon cash bail in the sum of $2,000. Dr. Kibbe, subsequently, withdrew his plea of not guilty and entered a plea of guilty.

Dr. Kibbe was born in 1880 and graduated in medicine from the University of Minnesota in 1905. Dr. Kibbe was licensed to practice medicine in Minnesota the same year. For the past seventeen years Dr. Kibbe has practiced at Minneapolis, and for thirteen years prior to that time was located at Canton, Minnesota.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

Physicians Licensed February 11, 1944

December 20, 21, 22, 1943 Examination

ADAMS, FORREST HOOD, U. of Minn., M.B., 1943, 1000 Univ. Ave. S. E., Minneapolis, Minn.

ANDERSON, ARNOLD SEVEREN, JR., U. of Minn., M.B., 1943, 4634 Bruce Ave. S., Minneapolis, Minn.

ANDERSON, HAROLD JAMES, U. of Minn., M.B., 1943, 771 Geranium Ave., St. Paul, Minn.

ANDERSON, MILTON WINFIELD, U. of Minn., M.B., 1943, Boston City Hospital, Boston, Mass.

AVRICK, ALAN MAX, U. of Minn., M.B., 1943, 1319 Lincoln Ave., St. Paul, Minn.

BAUMAN, KENNETH LOUIS, U. of Minn., M.B., 1943, Milwaukee County Hosp., Milwaukee, Wis.

BERGAN, DONALD EVERETT, U. of Minn., M.B., 1943, King County Hosp., Seattle, Wash.

BERGE, HARRY LEROY, U. of Minn., M.B., 1943, 2524 31st Ave. S., Minneapolis, Minn.

BERGERON, V. LOREL, U. of Minn., M.B., 1943, 3901 Thomas Ave. S., Minneapolis, Minn.

BLUMENTHAL, PHILIP LOUIS, U. of Minn., M. B., 1943, St. Mary's Hosp., Minneapolis, Minn.

BOOM, GAYLORD WILLIS, U. of Minn., M.B., 1943, Detroit Receiving Hosp., Detroit, Mich.

BRICKLEY, PAUL MICHAEL, U. of Minn., M.B., 1943, St. Luke's Hosp., Chicago, Ill.

BRIMI, ROBERT JOHN, U. of Minn., M.B., 1943, Eloise Hosp. & Infirmary, Eloise, Mich.

BURSETH, EDGAR CARLYLE, U. of Minn., M.B., 1943, 535 Asbury, Apt. 1, St. Paul, Minn.

CARLANDER, LESTEER WILLIAM, JR., U. of Minn., M.B., 1943, 4227 Harriet Ave. S., Minneapolis, Minn.

CHRISTENSEN, MENTOR HALFDAN, U. of Minn., M.B., 1943, St. Mary's Hosp., Duluth, Minn.

COVEY, KENNETH WILBUR, U. of Minn., M.B., 1943, 920 S. 7th St., Minneapolis, Minn.

CRAVEN, JAMES PATRICK, Loyola, M.D., 1943, Williston, N. D.

DALE, LESTER N., U. of Minn., M.B., 1943, St. James, Minn.

DARGAY, CYRIL PAUL, Marquette, M.D., 1943, 1404 N E. University, Minneapolis, Minn.

DOUGHERTY, JOHN WALLACE, U. of Minn., M.B., 1943, U. S. Marine Hospital, Staten Island, N. Y. C.

EGGE, SANFORT GRANGER, U. of Minn., M.B., 1943, King County Hospital, Seattle, Washington.

ENQUIST, IRVING FRITIOF, U. of Minn., M.B., 1943, St. Mary's Hospital, Minneapolis, Minn.

FEE, JOHN GIFFORD, U. of Minn., M.B., 1943, St. Mary's Hospital, Duluth, Minn.

FEIGAL, WILLIAM MAX, U. of Minn. M.B., 1943, 1903 Columbus Ave., Minneapolis, Minn.

FERRELL, CLARENCE RICHARD, U. of Minn., M.B., 1943, Bethesda Hospital, St. Paul, Minn.

FIRESTONE, GEORGE MAURICE, U. of Minn., M.B., 1943, 1866 Portland Ave., St. Paul, Minn.

GAMBLE, ALICE HAWTHORNE, U. of Minn., M.B., 1943, John Sealy Hospital, Galveston, Texas.

GERICKE, JULIUS THEODORE, JR., Marquette, M.D., 1943, 123 W. Summit Ave., St. Paul 2, Minn.

GIBBS, ROBERT WILLIAM, U. of Minn., M.B., 1943, Presbyterian Hosp., Chicago, Ill.

GRIESS, DONALD FERDINAND, U. of Neb., M.D., 1942, Irwin Apt. 29, 23 7th Ave. S. W., Rochester, Minn.

HALME, WILLIAM B., U. of Minn., M.B., 1943, St. Mary's Hospital, Detroit, Michigan.

HODGSON, JOHN ROBERT, U. of Mich., M.D., 1940, Mayo Clinic, Rochester, Minn.

HOHM, PAUL HARROLD, U. of Chicago, M.D., 1943, Ancker Hospital, St. Paul, Minn.

HORNS, HOWARD L., U. of Minn., M.B., 1943, 142 Arthur S. E., Minneapolis, Minn.

HRUZA, WILLIAM JOHN, U. of Minn., M.B., 1942, 2615 Park Ave., Minneapolis, Minn.

JOHNSON, CARL LAURENCE, U. of Minn., M.B., 1943, U. S. Naval Hosp., Great Lakes, Ill.

JOHNSON, EDWARD ALFRED, U. of Minn., M.B., 1943, Truman, Minnesota.

JOHNSON, KENNETH JOSEPH, U. of Minn., M.B., 1943, Seymour Hospital, Eloise, Michigan.

JOHNSON, PAUL RAYMOND, U. of Minn., M.B., 1943, Hosp. of Good Samaritan, Los Angeles, Calif.

JOHNSON, REINALD GUSTAV, U. of Minn., M.B., 1943, Bethesda Hospital, St. Paul, Minn.

KALIHER, HOWARD, U. of Minn., M.B., 1943, 800 4th St. S. E., Minneapolis 14, Minn.

KELLEY, KENNETH JOHN, U. of Minn., M.B., 1943, Swedish Hospital, Minneapolis, Minn.

KLEIFGEN, GEORGE VAN HORN, U. of Minn., M.B., 1943, Mayo Clinic, Rochester, Minn.

KNUDSEN, HELEN L., U. of Minn., M.B., 1943, 500 S. E. Harvard, Apt. 11, Minneapolis, Minn.

KUEFFNER, WILLIAM ROBERT, U. of Minn., M.B., 1943, Route No. 4, Rockville, Md.

LAGAARD, SHELDON MILLER, U. of Minn., M.B., 1943, 3608 19th Ave. S., Minneapolis, Minn.

LEHMAN, SAMUEL JOHN, U. of Minn., M.B., 1943, 4001 N. Dupont Ave., Minneapolis, Minn.

LITMAN, NEIL NORMAN, U. of Minn., M.B., 1943, Detroit Receiving Hosp., Detroit, Michigan.

LITMAN, ROBERT ELKON, U. of Minn., M.B., 1943, Kings County Hospital, Brooklyn, N. Y.

LOBER, PAUL AMOOR HALLAM, U. of Minn., M.B., 1943, 4012 W. 44th St., Minneapolis, Minn.

LYNCH, JAMES LEO, U. of Minn., M.B., 1943, Minneapolis General Hosp., Minneapolis, Minn.

MALLETTE, LESTER BIRCH, Northwestern, M.B., 1943, Ancker Hospital, St. Paul, Minn.

MARTIN, FRANK EDGERTON, U. of Minn., M.B., 1943, 70 S. 12th St., Minneapolis, Minn.

MCADAMS, JOHN BRENNAN, U. of Minn., M.D., 1943, 1105 W. 7th Street, St. Paul 2, Minn.

MERNER, THOMAS BORDEN, U. of W. Ont., M.D., 1937, 1820 4th St. S. E., Minneapolis, Minn.

MIILLER, ZONDAL RONALD, U. of Minn., M.B., 1943, 307 1st Ave. N., Chisholm, Minn.

MUDGETT, ROXIE TYLER, U. of Minn., M.B., 1943, Illinois Research Hosp., Chicago, Illinois.

NELSON, ALFRED SIDNEY, U. of Minn., M.B., 1943, Ancker Hospital, St. Paul, Minn.

NESSET, WILLIAM DEAN, U. of Minn., M.B., 1943, Milwaukee County Hosp., Milwaukee, Wis.

NORUM, HENRY ALVIN, U. of Minn., M.B., 1943, 1741 Lincoln Ave., St. Paul, Minn.

ORR, BURTON ALLYN, U. of Minn., M.B., 1943, Detroit Receiving Hosp., Detroit, Michigan.

PETERSEN, GLENN LLEWELLYNN, U. of Minn., M.B., 1943, Baltimore City Hospitals, Baltimore, Md.

PETTERS, ROBERT JOHN, U. of Minn., M.B., 1943, Buffalo General Hosp., Buffalo, New York.

REGAN, JOHN JAMES, U. of Minn., M.B., 1943, St. Mary's Hospital, Duluth, Minnesota.

RIEMAN, ROBERT WILLIAM, U. of Minn., M.B., 1943, Milwaukee County Hosp., Milwaukee, Wisconsin.

ROCKWELL, CURTISS V., U. of Minn., M.B., 1943, 2878 Holmes Ave. S., Minneapolis, Minn.

ROCKWOOD, PHILO HARVEY, U. of Minn., M.B., 1943, Ball Memorial Hospital, Muncie, Ind.

ROGIN, NORTON, U. of Minn., M.B., 1943, Queens General Hosp., Jamaica, Long Island, N. Y.

ROTHNEM, MORRIS STANLEY, U. of Minn., M.B., 1943, 2733 Portland Ave., Minneapolis, Minn.

ROTNEM, ORVILLE MORRIS, U. of Minn., M.B., 1943, Milwaukee County Hosp., Milwaukee, Wisconsin.
RYDING, VINCENT THEODORE M., U. of Kans., M.D., 1942, Starbuck, Minnesota.
SANDERSON, DAVID JOHN, U. of Minn., M.B., 1943, U. S. Naval Hospital, Seattle, Washington.
SBOROV, VICTOR MAX, U. of Minn., M.B., 1943, 2829 Portland Ave. S., Minneapolis, Minn.
SEEBACH, LYDIA MARIE, U. of Minn., M.B., 1943, Kings County Hospital, Brooklyn, New York.
SHAFFER, JOHN ORDIE, U. of Minn., M.B., 1943, Philadelphia General Hosp., 34th St. and Curie Ave., Philadelphia, Pa.
SHAPIRO, MARVIN JAMES, U. of Minn., M.B., 1943, 220 W. Minnehaha Pkwy., Minneapolis, Minn.
SHEEHAN, JOHN RICHARD, U. of Minn., M.B., 1943, 1212 Shatto St., Los Angeles, Calif.
SIMMONDS, HARRY NORMAN LOUIS, U of Minn., M.B., 1943, 1562 N. Hamline Ave., St. Paul, Minn.
SKORNECK, ALAN BERNARD, U. of Minn., M.B., 1943, Queens General Hospital, Jamaica, Long Island, N. Y.
SMITH, CLYDE LEROY, U. of Minn., M.B., 1943, 3814 Bloomington Ave. S., Minneapolis, Minn.
STAPP, JOHN PAUL, U. of Minn., M.B., 1943, St. Mary's Hospital, Duluth, Minn.
TEMPLETON, HELENE MAE, U. of Minn., M.B., 1943, St. Barnabas Hospital, Minneapolis, Minn.
TROW, WILLIAM HOWARD, U. of Minn., M.B., 1943, 310 E. 22nd St., Minneapolis, Minn.
TRUESDALE, CLARK WELLS, U. of Minn., M.B., 1943, Chas. T. Miller Hospital, St. Paul, Minn.
TURBAK, CHARLES ELROY, U. of Minn., M.B., 1943, Lincoln Hospital, 320 Concord Ave., Bronx 54, New York.
VADHEIM, ROBERT HAROLD, U. of Minn., M.B., 1943, Tyler, Minnesota.
VAN CLEVE, HORATIO PHILLIPS, JR., U. of Minn., M.B., 1943, 3248 Park Ave., Minneapolis, Minn.
VAN RYZIN, DONALD JOHN, U. of Minn., M.B., 1943,
WALSTAD, PAUL MARION, U. of Minn., M.B., 1943, Hosp. of Good Samaritan, 1212 Shatto, Los Angeles, Calif.
WATSON, ROBERT MCLEAN, U. of Minn., M.B., 1943, 149 Summit Ave., St. Paul 2, Minn.
WILCOX, G. CHARLES, U. of Minn., M.B., 1943, Miller Hospital, St. Paul, Minn.
YORDY, FRANK SCRIBNER, U. of Wis., M.D., 1943, Ancker Hospital, St. Paul, Minn.
ZARLING, VIRGIL RICHARD, U. of Minn., M.B., 1943, Baltimore City Hosp., Baltimore, Md.

January 18, 19, 20, 1944 Examination

BURNS, CATHERINE, U. of Minn., M.B., 1943, University Hospital, Minneapolis, Minn.
CIARAMELLI, LETIZIA CARMELA, N. Y. Med. Coll., M.D., 1942, Box 37, Mayo Clinic, Rochester, Minnesota.
COCHRAN, HIRAM DEE, U. of Tenn., M.D., 1941, Mayo Clinic, Rochester, Minnesota.
GUERIN, BRIANT BOWMAN, Duke, M.D., 1941, Mayo Clinic, Rochester, Minnesota.
HALL, ARTHUR MARTIN, U. of Minn., M.B., 1943, 3136 10th Ave. S., Minneapolis, Minn.
KUSSKE, DOUGLAS RAYMOND, U. of Minn., M.B., 1943, Swedish Hospital, Minneapolis, Minn.
LANE, MARGARET MARY, U. of Ill., M.D., 1943, 8520 Watertown Plank Rd., Milwaukee 13, Wisconsin.
MERRICK, CHARLOTTE TESCHAN, U. of Minn., M.D., 1943, 1500 Chicago Ave., Minneapolis, Minn.
NORD, ROBERT EDWARD, U. of Minn., M.B., 1943, 1453 Medical Arts Bldg., Minneapolis, Minn.
PYLE, MARJORIE MCDONALD, U. of Kans., M.D., 1940, Mineral Springs San., Cannon Falls, Minn.
SMITH, ARTHUR LAWRENCE, JR., Rush, M.D., 1940, Mayo Clinic, Rochester, Minn.
STEVES, RICHARD JEROME, Northwestern, M.D., 1937, 2107 Pleasant Ave., Minneapolis, Minn.
WALLEN, JOHN WALFRED, JR., U. of Oregon, M.D., 1943, Ancker Hospital, St. Paul, Minn.

By Reciprocity

SCHNEIDER, LAWRENCE EDWARD, U. of Colo., M.D., 1929, 258 W. 6th St., Erie, Pa.
HUNT, WALLACE DANIEL, Northwestern, M.D., 1927, 401 City Hall, Minneapolis, Minn.
STUART, ROBERT LEO, U. of Neb., M.D., 1942, Mayo Clinic, Rochester, Minn.
DEVINE, KENNETH DANIEL, State U. of Ia., M.D., 1941, 112 11th St. S. E., Rochester, Minn.

By National Board Credentials

YOUNG, BASCOM BROCKENBROUGH, U. of Va., M.D., 1929, 1026 Medical Arts Bldg., Duluth, Minn.

MASKED MASTOIDITIS

(Continued from Page 284)

sulfathiazole were continued in the hospital. The patient continued to have an afternoon temperature of from 100° to 100.6° F. The swelling and redness over the mastoid region increased gradually and the cervical tenderness and edema decreased. Except for slight congestion noted on one day, the tympanic membrane appeared normal.

On October 29, 1942, fluctuation was elicited over the mastoid region and repeated roentgenograms disclosed an increase in the cloudiness of the mastoid cells. On this day complete mastoidectomy was performed. A large subperiosteal abscess was encountered which contained approximately ½ ounce (15 c.c.) of pus. The abscess had originated from a break in the central portion of the mastoid process. Many diseased cells were encountered throughout the mastoid bone. The tip of the mastoid process was removed completely. Myringotomy also was performed. The eardrum appeared normal and no discharge was present in the middle ear. The postoperative course was uneventful. The patient was dismissed from the hospital on the eighth postoperative day and was dismissed from our observation on November 30, 1942. The patient returned six months later for removal of her tonsils and adenoids. She had not had any further trouble with her ear.

Comment

This case, we believe, illustrates that mastoiditis can occur without the development of acute suppurative otitis media. The appearance of the eardrum on several occasions was an indication that the infection had extended from the nasopharynx to the middle ear, by way of the aditus ad antrum, to the mastoid cells, as stressed by Hempstead.

References

1. Hempstead, B. E.: Mastoiditis without apparent involvement of the middle ear. J.A.M.A., 81:1266-1270, (Oct. 13) 1923.
2. Kopetzky, S. J., and Almour, Ralph: A report of three cases of primary acute mastoiditis. Laryngoscope, 35:774-777, (Oct.) 1925.
3. Mackenzie, G. W.: Latent mastoiditis with necrotic bone. Laryngoscope, 39:501-505, (Aug.) 1929.
4. Pastore, P. N., and Hempstead, B. E.: Atypical mastoiditis: report of case in which persistent pain was the only symptom. Proc. Staff Meet., Mayo Clin., 13:593-595, (Sept. 21) 1938.
5. Smith, S. M.: Unusual types of mastoiditis, with presentation of patients. Ann. Otol., Rhin. & Laryng., 36:439-447, (June) 1927.
6. Williams, H. L., Jr.: Masked mastoiditis. Minnesota Med., 15:813-820, (Dec.) 1932.

MINNESOTA STATE MEDICAL ASSOCIATION

Ninety-first Annual Session

Mayo Civic Auditorium, Rochester, Minnesota

April 13, 14, 15, 1944

ANNOUNCEMENTS

Scientific Cinema—Please note that scientific motion pictures will be shown in the South Room, before each morning and afternoon session and at each intermission. In addition, scientific films provided by courtesy of our technical exhibitors will be shown at 5:00 p.m. at the conclusion of Thursday and Friday sessions. Whenever possible, authors will be present to answer questions and discuss films.

Luncheons.—Eight Round Table Discussion Luncheons have been arranged for Friday noon, April 14. Tickets must be purchased in advance for these luncheons. Lists of subjects and leaders are printed in this program and on the reservation cards mailed with the program. Attendance at each luncheon is limited and late-comers will be accommodated according to their choice if limits have not already been reached. Tickets $1.00.

Annual Banquet.—The annual dinner for members, guests and their wives will be held at the Rochester State Hospital, Friday, April 14, at 7:00 p.m. Vice Admiral Ross T. McIntire, Surgeon General of the Navy, and E. Mendelssohn Jones, President of the Minnesota State Medical Association, will be banquet speakers. Tickets $1.50.

Open House.—All convention visitors and their wives will be guests of the Olmsted-Houston-Fillmore-Dodge County Medical Society and the Minnesota State Medical Association at an Open House to be held Thursday night, April 13, in the Mayo Civic Auditorium Arena and Theater. Exhibits will be open for leisurely inspection at 7:00 p.m. in the Arena. Herman L. Kretschmer, President-elect of the American Medical Association, will be present to extend a greeting from the American Medical Association. A Variety Show by professional entertainers will begin at 8:30 p.m. in the Auditorium Theater.

Guest Speakers.—We are indebted to the following societies for guest speakers at this meeting:

The Minnesota Radiological Society—speaker, Ralph S. Bromer, Director, X-Ray Department, The Bryn Mawr Hospital, Bryn Mawr, Pennsylvania, who will deliver the annual RUSSELL D. CARMAN MEMORIAL LECTURE in Radiology.

The Northern Minnesota Medical Association—speaker, Ralph M. Waters, Professor of Anesthesia, University of Wisconsin, Madison, Wisconsin.

The Northwestern Pediatrics Society—speaker, Hugh McCulloch, Associate Professor of Clinical Pediatrics, Washington University School of Medicine, St. Louis, Missouri.

Mayo Foundation for Medical Education and Research—speaker Sumner L. Koch, Associate Professor of Surgery, Northwestern University, Chicago, Illinois.

Other guest speakers at this meeting:

Vice Admiral Ross T. McIntire, Surgeon General of the Navy, Washington, D. C.

Herman L. Kretschmer, President-elect of the American Medical Association, Chicago, Illinois.

Raymond W. McNealy, Associate Professor of Surgery, Northwestern University, Chicago, Illinois.

John H. Moore, Chairman, North Dakota State Maternal Welfare Committee, Grand Forks, North Dakota.

Ralph A. Reis, Professor of Obstetrics and Gynecology, University of Illinois, Chicago, Illinois.

Medal.—The Southern Minnesota Medical Association will present its annual medal for the best scientific exhibit presented by an individual physician at this meeting. Presentation will be made at the Banquet, Friday evening, April 14, at the Rochester State Hospital.

Fifty Club.—This year's candidates for election to Minnesota's "Fifty Club" will be honor guests of the Association at the 91st Annual Banquet Friday, April 14, at 7:00 p.m. at the Rochester State Hospital.

Woman's Auxiliary.—Wives of physicians attending the meeting may secure programs of business sessions and social events arranged by the Woman's Auxiliary at the Women's Registration Desk in the Kahler Hotel. All visiting women are cordially invited to attend the special events arranged by the Hostesses of the Olmsted-Houston-Fillmore-Dodge County Society Auxiliary.

All-Alumni Get-Together.—University of Minnesota Alumni will hold their annual reunion at a cocktail hour to be held at 5:00 p.m., Thursday, April 13, at the University Club. All University Alumni are invited to attend.

Class Reunion.—The Class of 1906 will hold a luncheon reunion Thursday, April 13, at 12:15 p.m., in the Hotel Arthur.

Medical Women's Luncheon.—All members of the American Medical Women's Association are invited to a luncheon to be held Thursday noon, April 13, at a place to be designated later. Reservations should be made early with Della G. Drips, M.D., 102-110 Second Avenue S. W., Rochester, Minnesota.

SPECIAL SESSIONS

In addition to the General Sessions to be held on Thursday, Friday and Saturday morning in the Auditorium Theater, there will be three special sessions to be held on Thursday afternoon, and on Friday and Saturday mornings, respectively. The first of these will be in the Assembly Room of the Mayo Clinic; the second and third will be in the South Room of the Mayo Civic Auditorium as indicated below:

Thursday, April 13, 2:00 p.m.—The Minnesota Academy of Ophthalmology and Otolaryngology will sponsor a special program in the Assembly Room of the Mayo Clinic on Thursday at 2:00 p.m. This program will be open to all convention visitors.

Special clinics have been arranged in Rochester hospitals for Academy members only, at 8:00 a.m. on the same day, to be followed by a luncheon at the Carlton Hotel. Attendance at the luncheon is limited, also, to Academy members.

Friday, April 14, 9:00 a.m.—A special program on orthopedic and fracture surgery has been arranged for Friday morning, April 14. This program will be given in the South Room of the Auditorium and will recess from 10:15 a.m. to 11:00 a.m. at the same time as the General Session, so that those who attend may visit exhibits, demonstrations and the Scientific Cinema. All convention visitors are welcome to attend this session.

Saturday, April 15, 9:00 a.m.—The American College of Chest Physicians will sponsor a special session on chest diseases, Saturday, April 15, at 9:00 a.m. in the South Room. Several visiting chest physicians and surgeons will take part in this program which will be followed by a luncheon at the Carlton Hotel at which J. Winthrop Peabody, president of the College, will speak. This session, also, will recess from 10:15 to 11:00 a.m. to view exhibits, demonstrations and the Scientific Cinema. All convention visitors are welcome to attend.

Surgical Clinics.—A program of surgical clinics has been arranged in Rochester hospitals for Thursday, Friday and Saturday, April 13, 14 and 15.

Demonstrations.—A program of demonstrations has been arranged for each intermission period and immediately preceding each General Session on Friday and Saturday, April 14 and 15. These demonstrations will be held in Rooms S-7 and S-1 in the Auditorium Arena.

The first series in Room S-7 will be conducted under auspices of the Minnesota Radiological Society. It will consist of lantern slide demonstrations of x-ray diagnosis in a variety of conditions, a different demonstration being scheduled for each period. Members of the society will be present in person to give each demonstration.

The second series, to be given in Room S-1 in the Arena, will be on physical medicine with special reference to rehabilitation in industrial and war injuries, under the direction of F. H. Krusen and E. C. Elkins of Rochester. It will show, especially, procedures for rehabilitation of traumatic orthopedic and general medical conditions available to the general practitioner, including use of local heat, simple massage and corrective exercise. Technicians will be present to demonstrate all procedures.

SCIENTIFIC CINEMA

South Room

Thursday, April 13

A. M.
8:00—Substernal Adenoma C. W. Mayo, Rochester
10:15—The Scleral Flap Cataract Operation
The Iris Inclusion Operation for Glaucoma
Muscle Recession for Convergent Strabismus
Charles Hymes, Minneapolis
P. M.
1:30—The Right to Hear
University of Iowa, College of Medicine
3:15—Clinic on Acute Mastoiditis
Medical Film Guild

Friday, April 14

A. M.
8:00—Colles' Fracture H. W. Meyerding, Rochester
10:15—Venipuncture J. S. Lundy, Rochester
P. M.
1:30—Segmental Resection of a Portion of the Stomach and Gastroenterostomy for Benign Gastric Ulcers
H. W. Walters, Rochester
3:15—Asphyxia Neonatorum Medical Film Guild
5:00—Surgical Sutures Since Lister
Johnson & Johnson

Saturday, April 15

A. M.
8:00—Psoriasis L. A. Brunsting, Rochester
10:15—One-stage Resection of the Right Colon with End to End Anastomosis
C. W. Mayo, Rochester

DEMONSTRATIONS

I. Phases of X-ray Diagnosis by Lantern Slides and Roentgenograms

Under the Auspices of the
Minnesota Radiological Society

Thursday, April 13—Room S-7

10:15-11:00 The Paranasal Sinuses
D. G. Pugh, Rochester
1:30- 2:00 The Diagnosis of Placenta Previa
W. H. Ude, Minneapolis
3:15- 4:00 Some Common Lesions of the Stomach and Duodenum
R. W. Morse, Minneapolis

Friday, April 14—Room S-7

8:00 - 9:00 A Comparison of Roentgen and Physical Findings in Cases with Extensive Lung Pathology
J. R. Aurelius, Saint Paul
10:15-11:00 Roentgen Examination of Fractures
C. N. Borman, Minneapolis
1:30- 2:00 The X-Ray Examination as an Aid to Obstetrical Diagnosis
C. A. Good, Rochester
3:15- 4:00 Myelography in the Diagnosis of the Herniated Intervertebral Disc
H. O. Peterson, Saint Paul

Saturday, April 15—Room S-7

8:00- 9:00 Differential Diagnosis of some Mediastinal Masses
A. T. Stenstrom, Minneapolis
10:15-11:00 The Roentgen Examination of the Colon H. M. Weber, Rochester

II. Physical Medicine with Special Reference to Rehabilitation in Industrial and War Injuries

F. H. Krusen and E. C. Elkins, Rochester

Thursday, Friday, Saturday, April 13, 14, 15—Room S-1
(Time Schedule Same as for Demonstration I)

The purpose of this demonstration and exhibit is to present to the general practitioner through use of charts, apparatus and demonstration, simple procedures which may be used in the rehabilitation of traumatic orthopedic and general medical conditions. An attempt will be made to point out briefly the physiologic effects and indications for the use of procedures available to the general practitioner; e.g., use of local heat, simple movements of massage and corrective exercise and to present some of the commonly used simple procedures by demonstration.

SCIENTIFIC PROGRAM

Thursday, April 13

Section 1—General Session

A. M.
8:00 Demonstrations
Exhibits
Scientific Cinema
Surgical Clinics at Rochester Hospitals
9:00 **Peptic Ulcer**.....Auditorium Theater
Medical Management.....
J. A. Lepak, Saint Paul
Surgical Treatment..M. G. Gillespie, Duluth
Roentgenological Diagnosis.....
W. H. Ude, Minneapolis
Summary .....
O. H. Wangensteen, University of Minnesota

Intermission

10:15 Demonstrations
Exhibits
Scientific Cinema

11:00 **Anesthesia in General Practice**.....
Auditorium Theater
Indications for and Use of Local Anesthesia.....S. R. MAXEINER, Minneapolis
Intravenous Anesthesia.....
R. R. KNIGHT, University of Minnesota
Summary and General Considerations...
R. M. WATERS, Professor of Anesthesia, University of Wisconsin, Madison

Afternoon

P. M.
1:30 Demonstrations
Exhibits
Scientific Cinema
Surgical Clinics at Rochester Hospitals

2:00 **Mayo Foundation Lecture**.....
Auditorium Theater
Injuries to the Hand.....
SUMNER L. KOCH, Associate Professor of Surgery, Northwestern University, Chicago, Illinois

Intermission

3:15 Demonstrations, Exhibits, Scientific Cinema

4:00 **Russell D. Carman Memorial Lecture**...
Auditorium Theater
Roentgenolical Diagnosis of Skeletal Disease in Infants and Children.....
RALPH S. BROMER, Director, X-Ray Department, the Bryn Mawr Hospital, Bryn Mawr, Pa.

7:00 **Open House**.....Mayo Civic Auditorium

Thursday, April 13

Section 2—Special Session

A. M.
MINNESOTA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
(Attendance limited to Members of the Academy)

8:00 **Surgical Clinics**
Ophthalmology and Otolarynology Clinic. 4th Floor, Worrall Hospital
Laryngology and Oral and Plastic Surgery Clinic.....11th Floor, Kahler Hospital

P. M.
12:30 **Luncheon**.....Carlton Hotel
(Attendance limited to Members of the Academy)

2:00 **Program**.....Assembly Room, Mayo Clinic
(Meeting open to all convention visitors)
Clinical Application of Cover Test and Prism Screening....H. P. JOHNSON, Rochester
Discussion .....A. D. PRANGEN, Rochester
Case Reports:
Spreading Osteomyelitis of the Maxilla
O. E. HALLBERG, Rochester
Frontal Osteomyelitis Secondary to Suppurative Frontal Sinusitis.....
R. J. D. WILLIAMSON, Rochester
Arnold's Nerve Reflex Cough.....
W. C. THORNELL, Rochester
Differential Diagnosis of Choked Disk and Optic Neuritis.....E. M. HAMMES, Rochester
Malignant Tumors of the Middle Ear and Mastoid.....F. A. FIGI, Rochester
Discussion.....B. E. HEMPSTEAD, Rochester

7:00 **Open House**.....Mayo Civic Auditorium

All convention visitors and their wives will be guests of the Olmsted-Houston-Fillmore-Dodge County Medical Society and the Minnesota State Medical Association at an Open House and Variety Show to be staged Thursday night at the Auditorium. Scientific and technical exhibits will be open for inspection at 7:00 p.m. At 8:30 p.m. a novel program of professional entertainment and music will begin on the stage of the Auditorium Theater. Everybody is welcome. No charge.

Friday, April 14

Section 1—General Session

A. M.
8:00 Demonstrations, Exhibits, Scientific Cinema, Surgical Clinics at Rochester Hospitals

9:00 **Pre-Operative and Postoperative Care for the Bad Risk Patient**.....
Auditorium Theater
General Aspects.....
CLARENCE DENNIS, University of Minnesota
In Infants.....E. S. PLATOU, Minneapolis
In the Aged.....O. I. SOHLBERG, Saint Paul
Summary and Discussion.....
R. W. MCNEALY, Associate Professor of Surgery Northwestern University, Chicago, Illinois

Intermission

10:15 Demonstrations, Exhibits, Scientific Cinema

11:00 **Current Problems in Obstetrical Practice**
Auditorium Theater
Responsibility of the Physician.....
J. H. MOORE, Chairman, North Dakota State Maternal Welfare Committee, Grand Forks, North Dakota
Control of Obstetrical Hemorrhage.....
R. A. REIS, Professor of Obstetrics and Gynecology, University of Illinois, Chicago, Illinois
Suggestions for Improvement.....
J. C. LITZENBERG, Minneapolis

P. M.
12:15 **Round Table Luncheons**
(See Section 2 for program)

Afternoon

1:30 Demonstrations, Exhibits, Scientific Cinema, Surgical Clinics at Rochester Hospitals

2:00 **Tropical Diseases**.....Auditorium Theater
Vice Admiral Ross T. McIntire
Surgeon General of the Navy.....
Washington, D. C.

Intermission

3:15 Demonstrations, Exhibits, Scientific Cinema

4:00 **Significance of Rheumatic Fever to the Community**.....Auditorium Theater
HUGH MCCULLOCH ..... St. Louis, Missouri
Professor of Clinical Pediatrics, Washington University School of Medicine.

5:00 **Scientific Cinema**

7:00 **Annual Banquet**....Rochester State Hospital
Presiding: L. A. BUIE, Rochester, President, Olmsted-Houston-Fillmore-Dodge County Medical Society
Introduction of MRS. A. J. BIANCO, Duluth, President, Woman's Auxiliary
Presentation of "Fifty Club" Certificates
Presentation of Southern Minnesota Medical Association Medal
President's Address: E. MENDELSSOHN JONES, Saint Paul, President, Minnesota State Medical Association
Address: VICE ADMIRAL ROSS T. MCINTIRE, Surgeon General of the Navy, Washington, D. C.

Friday, April 14

Section 2—Special Session

A. M.
8:00 Demonstrations, Exhibits, Scientific Cinema, Surgical Clinics at Rochester Hospitals.

9:00 **Orthopedic and Fracture Surgery**.....
South Room
R. C. WEBB, Minneapolis, Chairman
Total and Partial Excision of the Patella
H. H. YOUNG, Rochester
J. M. REGAN, Rochester

Treatment of Benign Bone Cysts with Pathological Fracture.....
J. F. POHL, Minneapolis
The Dual Bone Graft in the Treatment of Nonunion.....H. B. HALL, Minneapolis
Handling of Compound Fractures from Place of Injury to the Hospital.....
J. A. THABES, JR., Brainerd
Handling of Compound Fractures in the Hospital.....W. D. WHITE, Minneapolis

Intermission

10:15 Demonstrations, Exhibits, Scientific Cinema

11:00 **Orthopedic and Fracture Surgery** (continued) .....South Room
Fixed Osteotomies for Certain Conditions About the Hip Joint .....
C. C. CHATTERTON, Saint Paul
Experience with Fractures of Neck of the Femur and Intertrochanteric Region.....
J. H. MOE, Minneapolis
Use of the Brackett Operation in Nonunion of Fracture of the Neck of the Femur....
R. K. GHORMLEY, Rochester

12:15 **Round Table Luncheons**
Newer Methods of Treating Syphilis: ....
P. A. O'LEARY, Rochester
Use of Drugs in Cardiac Emergencies ....
H. E. RICHARDSON, Saint Paul
Acute Appendicitis .. A. E. SOHMER, Mankato
Rheumatic Fever .... P. F. DWAN, Minneapolis
Anemias and Leukemias .....
C. J. WATSON, University of Minnesota
Poliomyelitis: the Kenny Treatment: ....
M. E. KNAPP, Minneapolis
Treatment of Sterility: .. J. R. MANLEY, Duluth
Differential Diagnosis of Breast Tumors:...
A. R. COLVIN, Saint Paul

Saturday, April 15

Section 1—General Session

A. M.

8:00 Demonstrations, Exhibits, Scientific Cinema, Surgical Clinics at Rochester Hospitals.

9:00 **Diseases of the Colon**...Auditorium Theater
Illustrated with Endoscopic Motion Pictures in Color of Lesions of the Terminal Portion of the Colon .... L. A. BUIE, Rochester
N. D. SMITH, Rochester
R. J. JACKMAN, Rochester

Intermission

10:15 Demonstrations, Exhibits, Scientific Cinema

11:00 **Chemotherapy** .....Auditorium Theater
The Sulfonamides:
General Considerations.....
A. E. BROWN, Rochester
Clinical Application .....
J. M. STICKNEY, Rochester
Penicillin.....W. E. HERRELL, Rochester
Summary .....
W. W. SPINK, University of Minnesota

Saturday, April 15

Section 2—Special Session

AMERICAN COLLEGE OF CHEST PHYSICIANS

A. M.

9:00 **Diseases of the Chest**.....South Room
Practical Points in the Diagnosis of Pulmonary Tuberculosis.....
S. A. SLATER, Worthington
Development of Therapy in Tuberculosis During the Last Twenty-five Years .....
J. F. ALLEN, Professor of Clinical Medicine University of Nebraska, Omaha, Nebraska
Present Status of Chemotherapy in Tuberculosis.....H. C. HINSHAW, Rochester

10:15 Intermission

11:00 **Diseases of the Chest** (continued).....
South Room
All-out Tuberculosis Control by Medical Profession.....K. A. DANIELSON, Litchfield
Sarcoidosis .... W. L. MEYER, Medical Director South Dakota State Sanatorium, Sanator, S. D.
Case Reports .. L. W. MOODY, Medical Director Pureair Sanatorium, Bayfield, Wis.

12:15 **Luncheon**.....Carlton Hotel
Address: J. W. PEABODY, President, American College of Chest Physicians.....
Washington, D. C.

SCIENTIFIC EXHIBITS

American Medical Association
Botulism
Malaria

American Red Cross: Olmsted County Chapter
G. P. SHERIDAN, Chairman, Rochester

Committee on Conservation of Hearing
HORACE NEWHART, Chairman, Minneapolis

Committee on Tuberculosis
J. A. MYERS, Chairman, Minneapolis
The Laboratory Diagnosis of Tuberculosis
A. H. SANFORD and G. J. THOMPSON, Rochester
Chemotherapy of Tuberculosis
W. H. FELDMAN, F. C. MANN, and H. C. HINSHAW, Rochester

Mayo Clinic and Mayo Foundation
Technique of Venipuncture and Parenteral Therapy
J. S. LUNDY, R. C. ADAMS, and T. H. SELDON
Pedicle Grafts to Deep Skin Defects of the Foot and Ankle
R. K. GHORMLEY
Benign and Malignant Tumors of Bone
H. W. MEYERDING

Minnesota Hospital Service Association
A. M. CALVIN, Executive Director, Saint Paul

Minnesota Public Health Association
E. A. MEYERDING, Executive Secretary, Saint Paul

Minnesota Society for the Control of Cancer
MRS. S. E. LINSLEY, Executive Secretary, Saint Paul

Minnesota Society for the Prevention of Blindness
DOROTHY H. HAMILTON, Executive Secretary, Saint Paul

Minnesota State Department of Health
A. J. CHESLEY, Secretary and Executive Officer, Saint Paul

Production of Negative Pressure in the Respiratory Tract by Ciliary Action: Relation to Atelectasis
ANDERSON HILDING, Duluth

University of Minnesota
Pernicious Anemia, Benign Polyps and Carcinoma of the Stomach
L. G. RIGLER, H. L. KAPLAN, and CAPTAIN DANIEL FINK

Woman's Auxiliary to the Minnesota State Medical Association
MRS. F. S. MCKINNEY, President, Minneapolis

Minnesota Academy of Medicine

Meeting of February 9, 1944

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Minneapolis Club on Wednesday evening, February 9, 1944. Dinner was served at 7 o'clock and the meeting was called to order at 8:35 by the President, Dr. Walter E. Camp.

There were fifty-seven members and two guests present.

Minutes of the January meeting were read and approved.

The scientific program followed.

DR. HAROLD S. DIEHL, Dean of the Medical Sciences, of the medical School, University of Minnesota, prefaced the reading of his Inaugural Thesis with the following remarks:

Members of the Minnesota Academy of Medicine! I want to express to you my appreciation of the honor you have bestowed upon me in electing me a member of this Academy. I also appreciate your consideration in permitting me to postpone this thesis for several years, during which time I have been more or less snowed under with many things.

Many whom I see here this evening I have counted among my close friends for many years. The others I hope to include in the same group as a consequence of my associations in this organization. In my professional capacity, also, I am glad for the opportunities which membership in this Academy will give me for intimate association with all of you. I say this because the Medical School of the University of Minnesota represents the medical profession of Minnesota before the nation and the world. In so doing, it reflects either credit or discredit upon each of you. It is our hope that it will always be the kind of medical school of which you can be proud.

PROBLEMS OF POSTWAR MEDICAL EDUCATION

HAROLD S. DIEHL, M.D.
Minneapolis, Minnesota

In the decade before the war medical education in this country reached a standard of excellence hardly dreamed of a generation ago. Teaching staffs were stronger and facilities more adequate than ever before. Entrance requirements were raised, curricula revised and expanded. Students admitted to medical schools were carefully selected from large numbers of potentially qualified applicants. The result of all this, presumably at least, has been that our medical graduates as a group are better qualified than ever before to undertake the practice of medicine.

With the war changes in medical education were inevitable. Premedical requirements have been reduced from three or four years to two years of college work. The medical course proper has been accelerated by the elimination of summer vacations, thereby concentrating the work of four academic years into three calendar years. The number of students accepted for admission to medical schools has been increased by approximately 10 per cent. New courses in first aid, tropical medicine and war medicine have been introduced into the curriculum and special emphasis in regular courses has been given to such medical problems of the war as shock, hemorrhage, fractures, communicable disease control, sanitation and aviation medicine.

In postwar America the status of medical education will depend primarily upon the conditions existing in our country at that time. If we should lose the war or if our enemies are able to force a stalemate, we can anticipate either complete regimentation or continuation of our country as a vast armed camp. In either case the pattern of medical education will be determined not by medical educators or by the medical profession but by government itself.

Assuming, on the other hand, that we will be victorious, the termination of the war will require decisions as to whether these changes in medical and premedical education shall be continued. Most of them were considered undesirable when introduced and were accepted with reluctance by medical educators. Hence, there is certain to be much sentiment to return immediately and completely to the prewar program of medical education. This program was developed on the basis of long experience and critical evaluation and was considered reasonably sound and adequate. Certainly such a program should be accepted as at least the framework of the medical education of the future.

Yet to return blindly to a pattern of the past is to close our eyes to the possibility of improvement by breaking with tradition. Wartime experience with the accelerated curriculum and reduced entrance requirements should be carefully evaluated and considered in postwar planning. It is quite possible that some of the changes in medical education which have been made as adjustments to wartime conditions may have merit also for peacetime. There has, for example, long been con-

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cern over the increasing age of graduates from medical schools. With three or four years of college work preparatory to the study of medicine, four years in medical school and one to two years of internship, most physicians are between 27 and 28 years of age before they are ready to begin independent professional work. Add to this several years to establish a practice or three to five years of graduate training and such physicians are 30 years old before they are in a position to establish a home or to start the practice of a specialty. Perhaps the pendulum has swung too far in the direction of the prolongation of undergraduate medical training.

Medical education has never been static. Hence, it is probable that the postwar period will bring forth certain modifications in the program based upon wartime experience. These modifications are likely to be in the direction of more attention to the adjustment of teaching loads to available staff and facilities; continuation of a certain amount of acceleration; further trends from didactic to laboratory and clinical teaching; and more emphasis upon preventive medicine in its broadest aspects such as nutrition, healthful living, geriatrics, and industrial hygiene, as well as the prevention and control of communicable diseases.

Size of Medical Classes

In the early years of medical education in this country the number of students was limited only by the number of applicants and by their ability to pay the required fees. At one time 162 medical schools existed and more were organized whenever there were prospects of additional students. Establishment of standards of accrediting for medical schools and the reduction of their number to 66 medical schools and 10 schools of basic medical sciences caused a great reduction in the number of graduates.

At one time prior to the accrediting of medical schools the annual number of graduates reached 5747. This was in 1904 when the total population of the country was approximately 84,000,000. With the elimination of substandard schools a rapid decline in the number of medical graduates occurred, reaching a low of 2520 in 1922. Subsequent to that date the number of graduates has gradually increased to approximately 5,200 per year in the several years before the war. This is almost 50 per cent more than the number of physicians who die each year and represents an annual net increase of 1600 to 1800 physicians for the country as a whole, a rate of increase among physicians in excess of that among the general population. Furthermore, at the beginning of the war the United States had the highest ratio of physicians to population of any country in the world. The accompanying table shows the pre-war population per physician in countries with the better developed medical facilities.

The accelerated medical course and the increase in the size of classes will produce about 7,500 graduates annually. This is approximately double the number of deaths among physicians in recent years. The war will doubtless cause an increase in the death rate among physicians, but even allowing for this, the accelerated program of medical education should provide a sufficient

POPULATION PER PHYSICIAN IN VARIOUS COUNTRIES[2]

United States	1,750
Austria	1,880
Switzerland	1,250
Denmark	1,430
England and Wales	1,490
Germany	1,560
France	1,690
Norway	1,760
The Netherlands	1,820
Belgium	1,850
Sweden	2,890

number of physicians to meet the needs of both the armed forces and the civilian population at the close of the war. Whether the number of medical students in training should then be immediately reduced is dependent upon several factors at present unpredictable. Among these are: (1) the number of physicians who will be killed or disabled during the war; (2) the number who will be retained in the armed forces or other governmental agencies for domestic and foreign service; and (3) the postwar need, demand, facilities, and organization for the provision of medical services to the civilian population.

It is clear, however, that in the interest both of sound medical education and of good medical care, medical schools should appraise their situations and reduce the size of their student bodies to the number that can be properly trained with available staff and facilities. Unfortunately, some of the large increases in the number of students accepted for training during the war have been in medical schools with relatively meager facilities. Such situations should be corrected without delay.

Selection of Medical Students

In recent years the number of applicants for admission to medical schools has been more than twice the number of students accepted. This has made selection possible and doubtless has resulted in a higher average level of ability among medical students than existed prior to such selection. Even so most medical schools accept the last 20 to 25 per cent of students with distinct reservations as to their qualifications, intellectual or personal, for the study or practice of medicine. If possible, this lowest fourth should be replaced by students of greater promise.

There is some opinion that the cost of medical education prevents many able students from undertaking it. This may be true. Yet, the large proportion of medical students who are wholly or partially self-supporting indicates that at least for many, with sufficient ability and determination to secure a medical education, the financial difficulties are not insurmountable. On the other hand, the lack of funds doubtless deters some from undertaking the study of medicine and handicaps others in securing a medical education.

Under the Army and Navy College Training Programs economic considerations are completely removed, both as factors in determining who shall study medicine and as handicaps in medical school to students with limited resources. This represents an important educational experiment, the results of which should be carefully evaluated. If it appears that as a result of this subsidy appreciable numbers of superior students are enabled to undertake the study of medicine and if these

and other students with limited financial resources receive better medical educations because they are able to devote their time and energies undividedly to their studies, then it would seem in the public interest that more adequate loan or scholarship funds should be made available to aid medical students in the postwar era.

Premedical Education

For a number of years before the war practically all medical schools required three or four years of premedical college training as a prerequisite for admission, and 98 per cent of the students admitted to medical schools in 1941 had completed three or more years of college work. The purpose of premedical requirements is to provide medical students with a sound foundation in the sciences upon which medicine is based, a familiarity with the social sciences concerned with human relationships, an ability to use the English and at least one foreign language and an acquaintance with other fields which contribute to a liberal education.

In 1825, in answer to objections to establishing the medical school of the University of Virginia at Charlottesville instead of at Richmond where facilities for clinical instruction were more adequate, Thomas Jefferson stated that the chief aim of this medical school—"at first, was not to give a professional education, but simply instruction in a branch of liberal culture which every accomplished gentleman was presumed to have studied."[1] Most medical educators do not go as far as Thomas Jefferson in this regard but they are anxious that physicians should have a reasonably good general education; meaning thereby "those nonspecialized and nonvocational phases of education that should be the common possession of educated people in a democratic society."[4]

The reduction of the premedical course to two years of college work has necessitated the elimination of some desirable science courses and most of the opportunities to become acquainted with other fields of knowledge. These opportunities should be restored at the earliest possible moment.

However, consideration of the several groups of students who will be desirous of preparing for the study of medicine immediately after the war would seem to make gradual return to a longer premedical course desirable. Students from high school could well be required to meet normal peacetime requirements. On the other hand, students who have served for some time in the armed forces will be older, anxious to begin their professional studies, and impatient of prolonged premedical preparation. For them the curtailed wartime requirements might well be considered acceptable. Students who at the close of the war will have partially completed their premedical requirements under the Army or Navy College Training Programs will constitute an intermediate group.

Acceleration

Under the shorter premedical program students start upon the study of medicine a year or two younger than would otherwise be possible. Many feel that such students will be lacking in the intellectual maturity, the educational background and the sound judgment, so important for the study of medicine. Yet the adding of one or possibly even two or three years to the professional life of most physicians is no small consideration. Thirty-five years ago President Lowell of Harvard wrote, "With the long period of special training now required in every profession, there is a universal cry that men are beginning their careers in life too old, and that the period of education is too long. Disease and death are not postponed because a man starts upon the practice of his profession a year or two later than is necessary. His period of active life, his achievements and his usefulness are simply curtailed to that extent."[3] Over the years discussion of this problem has continued; but instead of a reduction there has been an increase in the age of graduation from medical school.

The possibility of saving time in premedical college preparation has been mentioned. The wisdom of much reduction here seems dubious; but there are definite possibilities of saving valuable years in the elementary and secondary schools. For superior students the lock-step of most elementary and secondary education is not only unnecessary but actually inimical to initiative and serious scholarship. Furthermore, much of the work of the last two years of high school is repeated during the first year in college. It would seem, therefore, that for many students, at least one or two years could be saved by acceleration in the elementary and secondary schools and by telescoping the last year of high school with the first year of college.

The question of immaturity on the part of such accelerated students doubtless has some validity. There is, however, no evidence that the learning capacity of an individual is greater from twenty-one to twenty-five years of age than it is from eighteen to twenty-two, and there is abundant evidence that young people of ability mature rapidly under responsibility and challenging purposeful work.[5] Sound judgment in medical matters is developed by clinical experience on the wards of hospitals or in medical practice, not by spending unnecessary years in elementary and secondary schools.

The accelerated medical curriculum, with the elimination of summer vacations and the acceptance of new classes at nine month intervals, was adopted for the duration of the war in order to graduate physicians earlier and in larger numbers for service in the armed forces. These demands will taper off with the cessations of hostilities. Therefore, unless there are needs for large numbers of physicians which cannot now be foreseen, most medical schools probably should and will return promptly to the annual admission of new classes. This is necessary if the medical faculties are to have time for the scientific and scholarly work which is the foundation of modern medical education.

With an annual admission of students and a reduction in enrollment, the annual number of medical graduates will be reduced and stabilized whether or not the acceleration of the medical course proper is continued.

The chief argument in favor of the continuation of the accelerated program in the medical school is that it permits students to graduate a year earlier than would otherwise be possible, thereby making available to them

an extra year for graduate study or for the practice of their profession.

Against continued acceleration the major arguments are that many students need the summer vacations to earn money toward the expenses of the ensuing year; that some students pursue additional studies during the summer months which contribute materially to their medical education; and that the students and faculty need vacations during the summer months.

Probably the first is the most valid of these arguments. Many students utilize the summer months to earn money for their next year's tuition. Yet the amount of money which the average student earns during three summer vacations, approximately $600.00 at the University of Minnesota, is small compensation for a year out of his professional life. If adequate loan funds or scholarships could be made available to students who need them, it would be preferable, even from an economic point of view, if medical students were able to accelerate their courses of study and graduate in the shortest possible time. Of greater significance is the additional year of service which graduates under the accelerated program can render to society.

The work that some students engage in during summer vacations undoubtedly contributes to their medical education, but the proportion of students who profit professionally by the work done during vacations is too small to provide a strong argument for continuation of the long summer holidays.

The argument that students and faculty members need vacations of three or four months during the summer is open to question. Even under the accelerated curriculum students have four to six weeks of vacation annually, and if classes are admitted only once a year, the faculty will have no more teaching under the accelerated program than under the normal curriculum.

Postwar Support of Medical Education

Financial limitations make it practically impossible for certain medical schools to conduct a truly first-class program of medical education. Some of these schools have attempted to increase their budgets by admitting excessive numbers of students. This is truly "selling the birthright" of medical education "for a mess of potage."

The late President Lotus D. Coffman of the University of Minnesota said that "there are certain things in life for which we pay whether we get them or not." He was referring to general education, but his statement is even more applicable to medical education. If medical education is not adequately supported, the public will receive inferior medical care and will pay for this in terms of unnecessary illnesses and even life itself.

This public must be made to realize that one of the fundamental requirements for a sound program of medical education is adequate financial support and that less than this is not economy but tragic shortsightedness.

The Instructional Program

Few, if any, changes in the medical curriculum or in instructional methods have been made in connection with the accelerated program. In this medical schools have followed the line of least resistance. As such, it probably is the one which will be followed by most schools in making their readjustments to a peacetime basis. On the other hand, periods of stress offer unique opportunities to make changes or readjustments which are difficult in normal times.

In most medical schools the curriculum has become overcrowded and rigid. Yet, new developments, and even some new fields, such as physical medicine and social medicine, must be presented if our graduates are to be prepared to deal with the medical problems of the future. In one of the large clinics of this country 10 per cent of all patients are referred to the division of physical medicine; a field in which few medical schools provide any instruction worthy of the name.

Social medicine has two connotations. One is sometimes called the "social component" of medicine: that is, the social, environmental and economic factors related to the patient's illness or recovery. Increasing attention is being given in medical schools to this field. The other connotation concerns the relationship of the physician and the medical profession to the society which they serve. It is apparent that this society is becoming increasingly interested in the distribution of medical services. To direct this interest to the benefit of all concerned it is essential that the medical profession understand the issues, the proposals and the plans and exhibit constructive leadership in this field.

These and other subjects we would like to present to our medical students but, unfortunately, there is no time for them in the curriculum. Each professor so thoroughly appreciates the importance of his own subject that he feels that he should have more time, not less, in which to present it.

If the medical curriculum is to be kept in balance with developments in medical science and medical practice, reappraisal of both the curriculum and instructional methods must be made from time to time. Possibly the time given to some subjects should be curtailed and that given to others extended. The postwar period offers a rare opportunity to make such reappraisals and readjustments. May the medical schools have the vision, the courage and the wisdom to take advantage of these opportunities.

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Discussion

DR. C. B. DRAKE, Saint Paul: One point which Dr. Diehl touched upon is the division of the school year between study and vacation. A boy of mine graduated recently from a medical school in New York City. He worked at high pitch for eight months and loafed for four each year. While I am not in favor of continuing the present procedure of condensing the usual four years' work into three, it seems to me that the months

of study could be extended so they would be less strenuous and the vacation periods correspondingly reduced to the benefit of the health of the medical students. I don't know the figures, but too many of our medical students still come down with tuberculosis before they are through their undergraduate and hospital training.

DR. H. B. ZIMMERMANN, Saint Paul: I would like to express my appreciation to Dr. Diehl for having presented this very important paper.

One thing that interested me very much was Dr. Diehl's suggestion that there be some teaching in medical school on the doctor's relationship to society. I have often thought this was an extremely important subject. I don't know just where or at what period in the medical curriculum such a course could be offered, but, inasmuch as we hear so much today with reference to distribution of medical care, it seems to me that the doctor himself should have some concept of the matter.

DR. A. M. SNELL, Rochester: There will probably be two groups of persons returning after this war that will constitute a problem for the medical schools. One group is composed of men who have completed the preliminaries of a medical education or have worked in some closely allied field and after joining the forces have picked up considerable practical medical education in the field by a sort of preceptorial system. They are going to require special handling, for some of them have great promise and a great desire to complete a medical course. The second group of persons is often forgotten in considerations of this type. They are the medical men who want further training in refresher courses or postgraduate work after the war. There are hundreds of men in overseas units who are almost completely out of touch with the practice of medicine in general and their respective specialties in particular. So far as I know, the existing graduate medical schools have scarcely enough facilities to provide all of them with the opportunities they want and need, and it appears that they will have to depend on the undergraduate schools to make provision for them.

DR. A. W. ADSON, Rochester: I arise to inquire whether or not Dr. Diehl has considered the advisability of permitting medical students in their junior year to take apprenticeships of three months under a preceptor who could be a general practitioner of medicine or one who has a small clinic in a rural community, in order to acquaint medical students with the problems of general practice. The University of Wisconsin has such a plan, and it appears to be useful in stimulating young doctors to locate in rural communities where medical needs appear to be greater than they are in urban centers.

DR. HENDRIE W. GRANT, Saint Paul: One of my nephews, who is now a student at Harvard Medical School, said that only six boys from a certain group were not the sons of physicians.

I have wondered what the possibilities are for young individuals becoming students in the Medical School at the present time. I think this is a problem that concerns the future physicians of America and will be very pleased if Doctor Diehl would state the methods which are used by the Army, Navy and the Medical School in filling their quota for future students.

DR. S. E. SWEITZER, Minneapolis: In the acceleration program at the University of Chicago they aim to get students through the university before the age they have been accustomed to get through. Another thing is that practically all the specialists have to take about three years' training which makes the specialists start their careers rather late. If these courses are speeded up, these boys could start their careers, start families, and become useful citizens much earlier than they are doing now. Of these men coming back from the war, some will want to start their medical education and must be taken care of.

Regarding these refresher courses, I don't think much of them. If these men get a few weeks' training, are they going to become specialists? We should either have well-trained specialists or none at all.

DR. W. L. BENEDICT, Rochester: Dr. Diehl's paper has more to do with instruction given in the regular medical course. However, he spoke of the postwar problems of instruction in medicine for those who wish to take up specialties. With only 66 medical schools in the country, I should like to know what Dr. Diehl thinks about increasing the number of medical schools and also increasing their capacity to take care of a greater number of students. Also, I would like to know what he thinks of augmenting the faculty in graduate instruction by having other hospitals within the state associated with the university hospital as is recommended in the Michigan plan.

DR. H. Z. GIFFIN, Rochester: Just a technical question with regard to Procurement and Assignment. If a student is a premedical student and has not been accepted by an accredited medical school, is the Appeal Board at liberty to defer such a student?

DR. J. B. CAREY, Minneapolis: I should like to have Dr. Diehl elaborate on the third point which he made. What is being done about orienting the students toward the present social trends? I think that is just as important at the present time as the education to compensate for their military service.

DR. DIEHL, in closing: I wish I had all the answers to the questions asked.

As to Dr. Drake's question concerning the advisability of vacation periods of four months each year: that was one of the questions which I raised in my paper. I think there are very good arguments for students spending ten or ten and a half months, instead of only eight or nine, out of each year in medical school. In my judgment, the time saved is infinitely more valuable than a long vacation each summer. As to the danger of students breaking down physically, I do not know of any evidence that this is a real danger. Some students break down from causes other than overwork. The tuberculosis is due more to lack of adequate safeguards in their clinical experience than to the amount of work they do.

Dr. Zimmermann asked what is being done or can be done to acquaint students with the place of physicians in society? We have a course for senior students, established about eight years ago, called "Orientation to Practice." This includes discussions, for the most part by men who are in practice, of the various relationships of the doctor to the community and to his patients. This course is a beginning, but only a beginning, in that field. We should go farther in developing discussions for student groups on these problems.

In regard to Dr. Snell's questions concerning the return to the medical school of men who have dropped out of school to go into service: There are, I am sure, very few of those. Doutbless more have dropped out of the premedical courses. Special provision will need to be made to get these men back into medicine in a manner that will be satisfactory to them.

The doctors who after the war will want opportunities for graduate work raise a very real problem but one which I did not even attempt to discuss this evening. There are at least 12,000 physicians in military service who have gone directly into military service from

their hospital service. A great many of these will want and need graduate training or refresher courses before establishing themselves in regular practice.

Dr. Grant's question concerned the sons of physicians who study medicine. There is obviously a special reason for sons of physicians to be interested in studying medicine but the percentage in medical schools is not excessive. I was wondering recently how well physicians' sons do in medical school in comparison with other boys. It seems to us at times that it is the physicians' sons who most frequently get into scholastic difficulties. So a few days ago I asked my secretary to list, according to occupations of their parents, the ten top-ranking students and the ten lowest-ranking students in the last five classes to graduate at Minnesota. There were physicians' sons in both groups, but a few more in the ten top than in the ten lowest. That at least does not sound too bad for physicians' sons in medicine. There are, of course, sons of physicians who never would attempt medical educations except for the influence of their families. Some of them say, "I don't know whether I am really interested in medicine but I don't want to disappoint dad."

Relative to the boy who wishes to study medicine and is eighteen years old or becomes eighteen this year: If he is physically qualified for military service the only way he can possibly hope to study medicine is under the Army or Navy College Training Program. Beginning with January 1, 1945, all medical schools are under contract to fill 25 per cent of places in each entering class with students assigned from the Navy's V-12 program and 55 per cent with students from the Army's Specialized Training Program. This leaves only 20 per cent of the places for civilian students; and it is intended that these places be filled by women and men ineligible for military service.†

In order to get into the Army or Navy training programs, the first requirement is that the boy must take the Army-Navy qualifying (so-called A-12) examination. This is given in colleges and high schools throughout the country several times each year. If he makes a satisfactory score on that examination, he is considered qualified for the training program. When he applies for the examination he must indicate whether he prefers the Army or the Navy program. If he chooses the Navy, passes the qualifying examination, and is selected for appointment, he will be fitted into the V-12 program, in accord with the amount of previous premedical work he has had. The Navy Program consists of five terms of fifteen weeks each. The first two terms are basic chemistry, physics, mathematics, etc. During those two terms a "screening" of the students is made; those who want to go into medicine being examined by a committee of the deans of the medical schools. The Navy officers are the only ones who have authority to make actual selections but they follow the recommendations of the deans. The students thus selected to continue with premedical work proceed with the next three terms and those who make the best records will be assigned to medical schools. Students are permitted to indicate what medical school they would like to attend: listing first, second and third choices. The Navy will attempt to follow these choices but does not guarantee to do so.

The Army Program is a little different in that the student must take basic military training for thirteen weeks at the end of the first term after his eighteenth birthday. If he makes a good record during that training, and is qualified under the tests he has taken, then he will be assigned for the A.S.T. Program. The Army scholastic program is similar to that of the Navy except that the terms are twelve weeks instead of fifteen weeks in length. Screening processes are similar.

DR. JOHN M. ARMSTRONG, Saint Paul: Supposing a boy has a deformity, say one leg is shorter than the other, so that he is disqualified for service; can he get into a medical school?

DR. DIEHL: Yes, we have saved 20 per cent of the places for those who are ineligible for military service.

In answer to Dr. Adson's question about getting students into local rural communities: We are aware of the need but do not know what we can do about it. Has the Wisconsin plan had this desired effect?

DR. ADSON: Yes, I think that the Wisconsin plan has been effective, since I have had the privilege of visiting with several of these medical students who have been serving their apprenticeships. The ones I have talked with are those who have been assigned to the Midelfart and Gunderson Clinics, located respectively in Eau Claire and La Crosse, Wisconsin.

DR. DIEHL: I am familiar with that plan and consider it an interesting experiment. They made their senior year twelve months in length and assigned the senior students for three-months periods to selected doctors around the state who acted as preceptors.

In regard to Dr. Sweitzer's question about the University of Chicago plan: President Hutchins has been interested in getting students into college and through their basic general educations at an earlier age. As I stated in my paper, I feel that there is much to be said in favor of such acceleration. One reason that the Chicago experiment has created so much furor in the educational field is that they propose to give students Bachelor of Arts degrees at the end of two years of college work. That was the part of the program that aroused most discussion in educational circles. The Medical School of the University of Chicago conducted a year-round program before the war; making it possible for students to go to school contiuously if they wished. I asked the Dean if many completed their medical training in three years. He said "No, not many, because the medical licensing laws in Illinois require that students be in school for four years."

In regard to Dr. Benedict's question about increasing the number of medical schools or the number of students in existing schools: I personally do not see at the present time any convincing evidence that the postwar needs for physicians will make it necessary to train more physicians than are being trained at the present time. The annual pre-war rate of increase among physicians was considerably greater than the increase in the general population. If we have more medical schools or larger classes we may have more physicians than society can absorb. As to larger classes, in my judgment some schools are accepting more students now than they should. This results in a definite reduction in the quality of training. Such schools should reduce their enrollments. The number of four-year medical schools has recently been increased by two: the University of Utah which formerly had only the first two years of medicine now has a complete four-year course; and a new school, called the Southwestern Medical School, has been established at Dallas, Texas. There is also talk about establishing a new school in Alabama and one in Florida. I feel, however, that the establishment of more medical schools should be discouraged rather than encouraged. We should attempt to make the ones we have better rather than establish more mediocre ones.

Plans and programs for graduate medical training must be revised if we are to provide opportunities for the men who want such courses after the war. One possibility is for hospitals, that have facilities and staff members qualified to give graduate training, to arrange

†In the interim between this discussion and its publication the Army has curtailed its training program to such an extent that it appears that only about 25 per cent of the places in future entering classes will be filled by Army students. This will leave about 30 per cent of the places in each class for students who may be deferred by Selective Service.

affiliations with medical schools for the conduct of such training.

One aspect of graduate and postgraduate medical education that has not received adequate consideration is the necessity to provide additional staff members to assist with these programs. Funds are needed for these programs just as for undergraduate medical education. The usual idea is that medical schools should take this on with little or no increase in the staff. The University of Pennsylvania has a separate postgraduate school which offers a year's training in basic sciences such as physiology, anatomy, pathology, after which students arrange to go to some hospital which is acceptable to the University of Pennsylvania for their clinical experience. Their program is financed, principally by the tuition fees of $800 per year. It is time that we realize that it is going to be necessary to provide special facilities and staffs in the medical schools in order to offer the graduate and postgraduate medical training which is essential for the maintenance of a high level of medical practice in this country.

In answer to Dr. Giffin's question: Premedical students are not eligible for deferment unless they have been accepted for admission to medical school.

Dr. Carey asked what is being done concerning the orientation of students in social aspects of medicine. I mentioned that in my paper as one of the things we ought to do but are not yet doing. To begin with, an elective course on the social and economic problems of medicine should be set up so that students who are interested will have some background for leadership in these fields when they get out into the practice of medicine.

The meeting adjourned.

ERLING W. HANSEN, M.D.
Secretary.

WOMAN'S AUXILIARY

MRS. F. S. MCKINNEY, *President*
Minneapolis, Minnesota
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Minneapolis, Minnesota

KANDIYOHI-SWIFT-MEEKER COUNTIES

Kandiyohi-Swift-Meeker County Medical Auxiliary was reorganized at a meeting held Wednesday evening, March 15, at the home of Mrs. Richard E. Anderson in Willmar.

Mrs. F. S. McKinney, state president, was a guest of the doctors and their wives at a dinner preceding the meeting, and later, assisted the women in forming their new organization.

Fifteen members were enrolled and the officers elected were: Mrs. Hans Johnson, Kerkhoven, president; Mrs. F. P. Frisch, Willmar, first vice president; Mrs. R. J. Hodapt, Willmar, secretary; Mrs. Richard E. Anderson, Willmar, treasurer. Committee chairmen are:

Publicity—Mrs. D. L. Jacobs, Willmar; Emergency Nursing—Mrs. A. S. Branton, Willmar; Medical and Surgical Relief—Mrs. R. J. Ripple, New London.

The group decided on the making of cancer dressings as a project for their next meeting. Congratulations and best wishes to you all!

HENNEPIN COUNTY

Friday, March 3, the auxiliary held a public relations meeting in the form of an all-day Health Institute. Presidents of all Minneapolis organizations including clubs, P.T.A.'s, and labor union auxiliaries, were invited. They came—three hundred strong.

Mrs. Harold Wahlquist presided at the morning session which was opened by Dr. W. A. O'Brien, who spoke on "Tropical Diseases, a Postwar Problem."

A Walt Disney film "Defense of Invasion," one entitled "Fight Syphilis" prepared by the U. S. Public Health Service, and "Fighting Tuberculosis in Hennepin County" a color picture based on Hennepin county tuberculosis control program followed.

The morning program was concluded with a talk by Marguerite Ridler, Director of Social Service at Glen Lake Sanitorium.

A brief noon recess for a box lunch divided the two sessions, after which Mrs. Russell Morse, afternoon chairman, introduced Dr. W. C. Alvarez of Rochester who spoke on "Why Women are Nervous."

Dr. E. J. Huenekens then discussed causes of rejection of eighteen- and nineteen-year-old boys from Army and Navy and how these conditions could have been prevented.

Frank Hertel, executive secretary of the Minneapolis Family Welfare association then explained the free and part-pay medical services available to residents of Minneapolis and Hennepin County.

Mrs. T. M. Olson of Elk River, commander of the Minnesota Society for Control of Cancer, revealed the lay problems in cancer control.

The day's program was very ably concluded by Dr. Stephen H. Baxter, past president of Hennepin County Medical Society, who informed the assembly of some of the hidden facts of the Wagner-Murray-Dingell Bill.

Transactions of the Minneapolis Surgical Society

Meeting of December 4, 1943

The regular monthly meeting of the Minneapolis Surgical Society was held on Thursday, December 2, 1943, in the Hennepin County Club Room at 8:00 p.m. The meeting was opened by the President, Dr. H. O. McPheeters and sixteen members were present.

The following papers were read:

1. "Herniation of Intervetrebral Disc," by Dr. William Peyton. Discussion by Drs. G. R. Dunn, Roscoe Webb, Robert McGandy, and John Moe. (Published on Page 263, this issue.)

2. "X-ray Diagnosis of Intervertebral Disc" by Dr. Harold Peterson by invitation.

The meeting was closed by the President.

Respectfully submitted,
J. M. FEENEY, *Secretary.*

In Memoriam

ARNOLD SCHWYZER, M.D.

Dr. Arnold Schwyzer was born May 23, 1864, in Zurich, Switzerland, of Swiss parentage. His father was a businessman and held the rank of Colonel Brigadier in the Swiss Army. He spent six and one-half years in the Zurich gymnasium (college). From

ARNOLD SCHWYZER

boyhood he longed to become a physician. After leaving the gymnasium, he took his basic medical science in Geneva, in the French language, where he passed the "propaedeutic medical examination." After this he had three years of clinical medicine at the Zurich University in the German language, and graduated in March, 1888, carrying the honor of being the highest in his class. Then he became a Lieutenant, as Swiss Army Surgeon. He made a short stay during student days in Italy and at the Royal Infirmary in Edinburgh to learn Italian and English somewhat.

For a short time he substituted as assistant at Kroenlein's Surgical Clinic. Then he prepared a Thesis for Doctor of Medicine under Professor Dr. O. Haab, Professor of Ophthalmology in Zurich. For one year he was assistant in the County Hospital of Glarus under Dr. Fritzsche, chief physician and surgeon. Then he became third, then second, and finally chief assistant of the gynecological and obstetrical clinic of the University of Zurich.

It was here that the unfolding of his genius became manifest. His medical reports and credentials all registered in the superlatives. The equivalent in our language would be "excellent." This covered the various fields of medicine, such as Ophthalmology, Pediatrics, Orthopedics, Public Health, Pathology, Gynecology and Surgery. He possessed a compilation of all these credentials, reports, and diplomas and it was the author's privilege a short time before Dr. Schwyzer's passing to see this compilation. He said to me in trembling voice, "You are the second medical man who has ever seen this." Such was his modesty.

When he had completed his work at Zurich, he longed to go on a world cruise while the faculty members pleaded with him to stay and join the faculty.

He was married twice. His first marriage was to Johanna Henggeler in 1899. She died in 1905. His second marriage was to Marguerite Mueller in 1906, who bore him three children, all physicians: Dr. Marguerite, graduate of Yale Medical School; Dr. Arnold, graduate of Johns Hopkins Medical School; and Dr. Hanns, graduate of the University of Minnesota Medical School, Captain in the U. S. Army Medical Corps at Camp Leonard Wood. Mrs. Schwyzer and the three children survive him. He was a devoted father and husband and by his passing leaves a great void in his home. His children speak of the wholesome philosophy he inculcated in them.

He was exceedingly conversant in European medical lore and readily frowned upon any undeserved claims to priority in medical or surgical discoveries. He knew many of the exponents of medicine in Europe. He began his practice in 1894 in Saint Paul, Minnesota. His span of life covers the golden era of medical art and science from the unknown of human ills through a period of development up to serene heights of medical science and precision.

He was a linguist. In the Romance languages he had conversational ability in Italian and Spanish and was very fluent in French. In his home the Swiss language was used to a great extent. He was a perfect student of the German language. He became very accomplished in the American language. The background of all his linguistic culture of the modern languages was due to his knowledge of the classics, Latin and Greek. Many of his old case histories are written in Latin or Greek.

He made it a custom throughout his career here in America to go to Europe every third year. Nine months of heavy work and three months of relaxation formed his schedule throughout. While in Europe he would browse around the clinics and would invariably bring back a rich fund of new ideas and instruments. In 1903 he returned with a bronchoscopic and esophagoscopic set, the first set in Minnesota. Within a month he had an occasion to remove a foreign body from the right lung. The other two years he would live

during the summer months among the pines on the farm he loved, situated on Grindstone Lake, in Pine County. This was not a summer of loafing, but during the summer one or more books would be digested concerning which he had been planning the preceding winter. Here he entertained his many friends.

A lover of horses! He always had a proud span of sorrels for coach driving in the early years and other horses for riding, of which he was very fond. His riding companion was usually Dr. Alexander Colvin. He continued riding until five months before his passing. In fact he had his daily ride during the whole summer of 1943, and would swing himself up onto the saddle without a step or support.

He was a charter member of the American College of Surgeons and the Saint Paul Surgical Society; a member of the Minnesota Academy of Medicine, Minnesota Pathological Society, Western Surgical Association, Minnesota State Medical Association, American Medical Association, American Surgical Association, Swiss Surgical Society and International College of Surgeons.

From 1900 to 1902 he was Clinical Professor of Pathology at Hamline University and during this time Pathologist to the City and County Hospital of Ramsey County. From 1904 to 1908 he was Professor of Clinical Surgery, Hamline University, surgeon to the St. Joseph's Hospital, and since 1927 Professorial Lecturer at the University of Minnesota, in 1932, Professorial Lecturer Emeritus at the University of Minnesota.

For many years he was chief of staff of St. Joseph's Hospital. His mature advice was sought and followed by the hospital authorities. He was past president of the Ramsey County Medical Society, and the Saint Paul Surgical Society.

In 1914 the Schwyzer family again went to Europe. At the end of July the doctor attended a meeting of the Royal College of Surgeons in London. After the meeting on his way back to Switzerland, he strolled leisurely on the depot platform waiting for the train to take him to port for his boat across the channel. This was about August 3, 1914, a very critical period, politically. Some detectives promptly arrested him at midnight on the charge of espionage. He was taken to police court where he faced a long and trying period of questioning. He tried to convince the judges that he was an American citizen, that he was a surgeon, and had attended the meeting of surgeons in London. The answer of the judges was, "We still think you are a German spy, unless you can produce substantial evidence to the contrary." At this moment he was reminded that in his inside coat pocket he had a personal letter from his associate in Saint Paul, who in this letter recited the progress of a long list of surgical cases—recent operations. One of the judges, a police surgeon, read this letter and that promptly released him.

The decorum in his operating room was rigid. He exercised complete control of the asepsis down to every move a nurse would make. As he approached the operating room, there lay ready for him the history of the patient which was carefully scanned to review his memory of findings pertinent to the operation to be performed. A kindly greeting to his patient, then the preparation of the patient was done. Only one deep-throated, audible voice could be heard during the operation, and that was the voice of the operator. A riveted attention from the operator through assistants to nurses, a tense period.

His sense of asepsis was an art with him. The carelessness of a visiting physician or friend of the patient barging into the operating room with street clothes and an unprotected mouth was quickly but tactfully corrected. The attention to the operation was not diminished though visitors were present, but he would freely present the diagnosis and surgical technique in such a way that they did not soon forget.

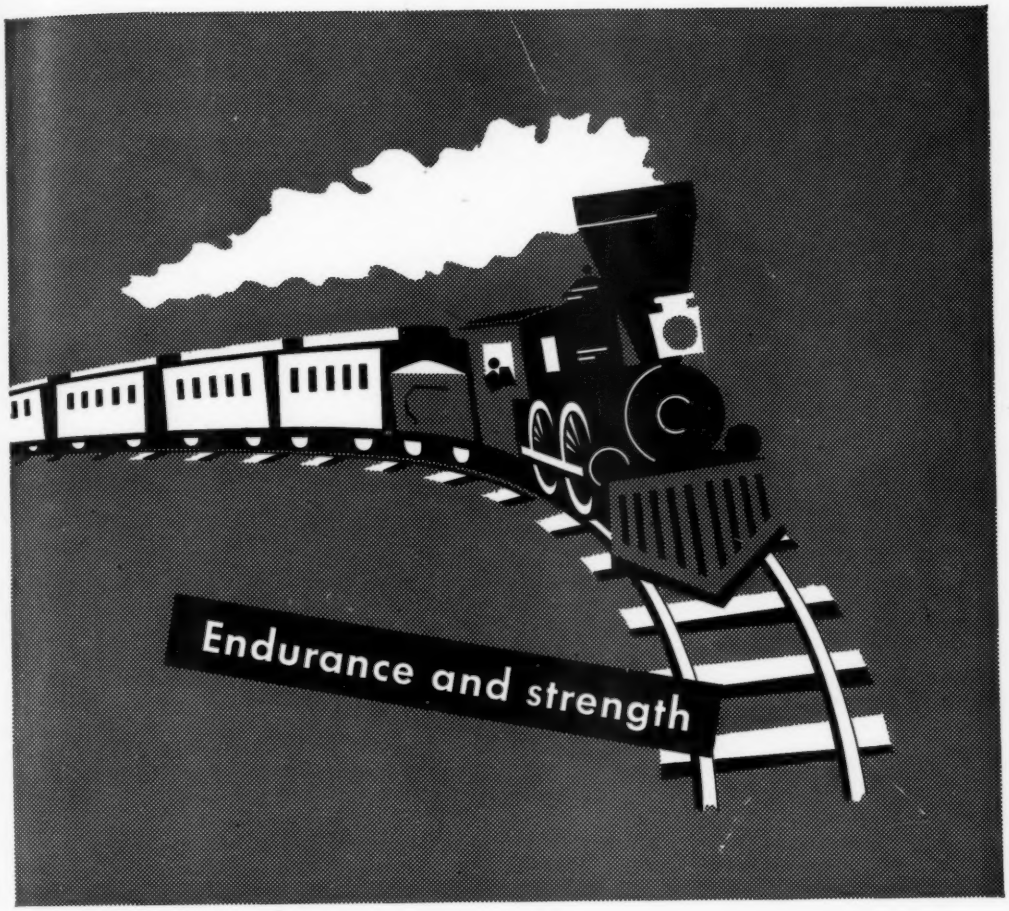
He was a deliberate operator and keenly sensed the delicacy of the tissue to be operated on. The least possible trauma to the tissue and a minimum of evisceration were mottoes he followed and taught.

His labors were not finished. He had a patient with carcinoma of the stomach, scheduled for operation on the morning when the exploratory laparotomy was done on him. He had done a cholecystectomy the day before and some patients were convalescing from major operations.

The great master has gone to his rest. A well earned rest after fifty years of arduous labors in serving the human race in their afflictions. He died February 19, 1944. No more will we see the "Chief" walk the halls of his most beloved hospital, St. Joseph's, the oldest hospital in Minnesota. No more will a dainty lunch be served him after his morning labors in his private room. On a table in this room was a record book in which accurate reports were kept of his operations and recorded the same hour.

His far-reaching memory made him vibrant in discussions of vital medical and surgical problems. He was a man of powerful physique, handsome in appearance and possessing a commanding manner. He was also very correct in his social contacts, was pleasingly tactful and carried himself with an air of considerable dignity. His patients were overly glad to see him and were awed by his presence. As an eminent surgeon and a cultured gentleman, he commanded the esteem and self-respect of every one of his contemporaries far and wide. His many devoted patients spoke of him in emotionally disturbed voice. Many wept upon the news of his passing. The community of Saint Paul in one accord speak in highest praises of this eminent surgeon. All through his career he upheld surgical standards to an unwaveringly high degree. He fashioned the work day by urging an early hour for operating and promptness of his assistants and associates. Routinely, throughout his career, he advised his patients to get out of bed early. Following herniotomy and simple appendectomy he would get his patients up the second day. After more major operations they were allowed a proportionately longer period in bed. His principle was that the suture is the strongest the day of the operation, and activity prevents thrombus formation. Economically this procedure shortens the hospital stay and lessens morbidity.

(Continued on Page 324)



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ANOTHER WAY TO SAVE LIVES . . . BUY WAR BONDS FOR VICTORY

(Continued from Page 322)

Due to his skillful diagnosis and surgical technique, together with his ethical standards, he wielded a profound influence over medical practice in this community.

Early in his career, besides general surgery, he practiced obstetrics, eye surgery and ear surgery. In later years he also did brain surgery.

His ready knowledge of bone development aided him in recognition of the age of the patient when viewing an x-ray film. It was thrilling to see x-ray interpretations made back in 1911. We had no radiologists then.

His knowledge of cell structure, normal or abnormal, was extraordinary. Besides being his surgical assistant for eleven and one-half years and x-ray technician, the author also functioned as pathological technician, doing all the tissue preparation, working up through celloidin, and when the sections were all stained and mounted, we would have an early Sunday morning pathological conference, just we two. This was thirty-five years ago. Down the line, the master pathologist would not only diagnose the section under the microscope, but would in most instances pronounce the name of the patient from whom the specimen had been taken. This was usually from ten to fourteen days after surgery. Probably the keenest diagnosis and recognition of tissue under the microscope was when a slide was placed under the microscope consisting of a section of the wall of an echinococcus cyst. He did not know that a section was being made, as the surgical diagnosis was obvious. The echinococcus cyst wall is nothing but homogeneous material with laminated layers. He immediately recognized this section and associated it with the patient.

He kept up to date on the fundamental science of embryology, because time and again during surgery he would point out the embryological origin of the tissue before us.

His groundwork of Physics, Metaphysics, Organic and Physical Chemistry stood him in good stead in the preparation of an article on "Origin and Evolution of Life," which possessed a richness of thinking in the association of the unknown.

In 1903, a patient with a huge aneurysm of the innominate artery came for relief. Our American literature had not much to offer forty years ago on the technique of procedure. But the mastery of language was at his command when in the *Revue de Chirurgie* he found a report of a similar case. He followed the technique and ligated distally the common carotid artery and the subclavian artery. There was a risk to brain circulation and a very decided risk to the collateral circulation of the arm. For some days the right arm was pulseless, but the pulse, though faint, returned. The patient recovered. A few years ago he reported the operation and demonstrated the perfect result on the then living patient to the American Surgical Association at Yale University.

He devised a surgical technique for the correction of kinking of the ureter at the renal pelvis junction and an improved fascia suture whereby both ends of the silk-worm gut were on the same side of the incision, thereby retaining a constant suture tension on the fascia.

He performed the first cystoscopic examination in the state of Minnesota in 1894. This was not published at that time, but the prepared paper is at hand written in 1942, not published, and we are uncertain whether it has been presented to any group. He also performed the first removal of a foreign body in the lung in Minnesota in 1903.

On February 12, 1934, St. Joseph's Hospital tendered a banquet to commemorate his seventieth birthday as a gesture of honor to this famous surgeon. At this festival were assembled a representative group of the profession. Dr. John Lepak was chairman of the festivities and the speakers were: Dr. C. C. Chatterton, orthopedic surgeon and chief of staff of St. Joseph's Hospital; Dr. Gustav Schwyzer, eminent surgeon and brother of the honored guest; Dr. John L. Rothrock, teacher, obstetrician and gynecological surgeon; Dr. Justus Ohage, eminent surgeon, the first to perform cholecystectomy in the United States; Dr. George Geist, surgeon, composer and former associate of the guest of honor; Dr. William C. Carroll, surgeon; Dr. William J. Mayo, chief of the Mayo Clinic; Dr. F. C. Schuldt, surgeon and former associate of the guest of honor.

The ovations expressed were the highest tribute that could be spoken of a master surgeon. The sentiment of those gathered may be expressed in these lines:*

"'Tis given to few to know
what he has known,
'Tis given to few to see
what he has seen."

His has been a long and full professional life. He had a full measure of surgery, wide in its scope, to which he gave all he had.

His greatest compensation lay in the kindly utterances of his many grateful patients, giving wholesome expression to his marvelous power of healing.

I consider it a privilege and an opportunity to have been an associate of the great master. Although they were strenuous and time-absorbing years yet they represented a postgraduate course under his influence and teaching which covered the whole field of medicine and allied fields, surgical judgment, diagnosis, surgical technique. His teaching was in a faultless German language.

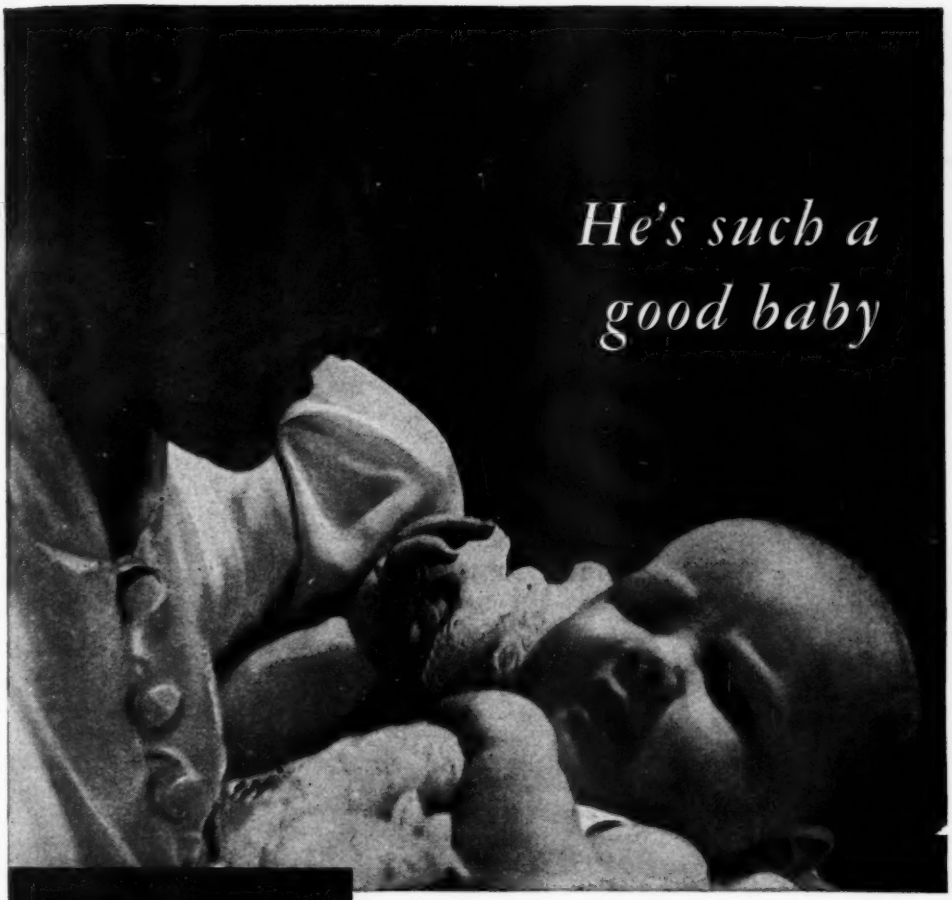
Medical literature has been enriched by his prolific writings. Approximately 83 publications are credited to his masterful pen. Due to his versatility in the various fields of medicine, his broad horizon and his linguistic ability he could cope with the whole range of medical science.

The following complete analysis of his writings has been compiled through the kindness of the librarian of our Ramsey County Medical Society.

Published articles	83
Manuscripts—presented not published	6
Manuscripts—unidentified not published	10
	99
Articles written, presented, not published, no manuscript	9
Total	108

*From the poem "The Old Master" by Dr. John Ryan.

(Continued on Page 326)



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(Continued from Page 324)

His surgical skill and the pages of medical lore he has written will immortalize his fame.

About three weeks before his end he was so optimistic about the progress of his disease that he discussed with his family the likelihood of spending the coming summer on the farm, and said, "I may be able to do some more writing." A week later he had in mind to write a farewell to the members of the staff of St. Joseph's Hospital. He wrote, harking back fifty years and recalled the available hospitals then, their relative efficiency, and admitted the asepsis was of a quality of the "Woolly West."

Then he recited how in the first year of his practice he met some of the representative men of Saint Paul. There he abruptly ended. It was evident that he had much more to say, that at the end he would close with a farewell in some formality. His strength had ebbed for that day and never returned. So this was his "Unfinished Farewell" and the end of his prolific career in the writing of medical lore.

F. C. Schuldt, M.D.

JAMES PHAON CALDWELL

Dr. James Phaon Caldwell of 1845 Buford Avenue, Saint Paul, Minnesota, died January 20, 1944, at the Midway Hospital following a brief illness.

He was the son of Dr. James P. Caldwell, a pioneer physician of Princeton and Lakeville, Minnesota, and was born September 6, 1883, at Princeton. When his parents moved to Saint Paul, James Phaon, known as Fay, entered Central High School, where he sang in operettas and started his athletic career on the football and track teams. Graduated in 1903, he enrolled at Hamline for two years, starred on the gridiron, and sang with the Hamline Glee Club and Church quartet.

In 1905 he entered Medical School at the University of Minnesota. Active in all campus affairs, he was captain of the varsity baseball team for two years, this placing him on the Athletic Board of Control. He was a member of Nu Sigma Nu, Alpha Tau Omega, and Grey Friars (honorary) fraternities. He sang in the glee club and was chosen for the leading baritone role in the junior and senior operettas.

He received his medical degree in the class of 1909, serving his internship in Northwestern Hospital, Minneapolis, and he later took postgraduate work at Johns Hopkins University, Baltimore.

He was employed as District Physician and Surgeon, comprising six towns, of the United States Steel Corporation at Coleraine, Minnesota, for nine years. He was married in 1913 to Nettie Jane Sylvester, and they had two sons: James, Jr., who is a lieutenant in the U. S. Army at New York Port of Embarkation, and Chester Byrl, who passed away at fifteen years of age in 1936.

In 1920 Dr. Caldwell assumed private practice in Saint Paul, with offices at 1013 West Seventh Street and 478 South Snelling Avenue for eighteen years, and later in the Lowry Medical Arts Building. He was active on the staffs of St. John's, Midway and St. Luke's Hospitals, and was also a member of the Ramsey County, State, and American Medical Associations.

In later years he enjoyed fishing, hunting, and golf and was a member of the M Club. Fay was an enthusiastic football fan for nineteen years. He practiced medicine to be of service to the common man, and thus in humble generosity found peace unto his soul.

He attended Fairmount Avenue Church, where services were held January 24, 1944, with burial in Roselawn Cemetery.

George Earl, M.D.

WILLIAM M. HALLER

Dr. William M. Haller, a captain and flight surgeon at Pueblo, Colorado, and a former Bemidji doctor, was fatally injured in an automobile accident at Everett, Pennsylvania, in March. His wife, the former Dorothy Lizer of Bemidji, was seriously injured in the accident.

Dr. Haller was born in Blair, Nebraska, August 5, 1910. He attended Blair High School and Dana College, located at Blair. He obtained his medical degree from the University of Nebraska in 1933. After interning at the Immanuel Lutheran Hospital at Omaha, he located in Bemidji, Minnesota, being affiliated with Dr. D. J. Jacobson of that city.

Dr. Haller was a member of the Upper Mississippi Valley Medical Society, the Minnesota State and American Medical Associations.

CAPTAIN WILLIAM W. HEYERDALE

The Adjutant General's Office has reported that Captain William W. Heyerdale, M.C., A.U.S., died March 11, 1944, following injuries sustained in an automobile accident on the island of New Caledonia.

Dr. Heyerdale was born at Rochester, Minnesota, April 12, 1907. He received the degree of B.S. in 1932 from the University of Iowa and of M.D. in 1935 from Louisiana State University. He was an intern at the Charity Hospital, New Orleans, from July, 1934, to July, 1935, and was physician on the *SS Delvalle* from July to October, 1935. He entered the Mayo Foundation as a Fellow in Surgery, October 1, 1935, and became a consulting physician of the Mayo Clinic in January, 1939.

He was a member of the American Medical Association and of Phi Delta Theta.

CHESTER JAMES STURGES

Dr. C. J. Sturges, formerly of Buffalo, Minnesota, died February 23, 1944, at the Veterans' Hospital, Minneapolis, where he had been located since 1940.

Chester James Sturges was born in Buffalo, Minnesota, December 29, 1896. He graduated from Buffalo High School in 1915, and received his M.D. degree from the University of Iowa Medical School in 1922.

On June 2, 1923, Dr. Sturges married Lillyan Thompson, and three children, Robert Leon, Richard Eugene, and Jeanne Ann, were born to the couple.

Dr. Sturges practiced in Buffalo from 1924 to 1927,

in association with Dr. J. J. Catlin. He then entered the Government Service in the Panama Public Health Department in 1928. He was transferred to the Medical Staff of the Veterans' Hospital at Bath, New York, in 1930, where he remained until 1940. He was then transferred to the Veterans' Hospital in Minneapolis, where he remained until his death.

FREDERICK W. SCHLUTZ

Dr. Frederick W. Schlutz, chairman of the Pediatric Department of the University of Chicago, died March 8, 1944, following a heart attack just before he was to leave on an extended goodwill mission to Latin America for the State Department.

Dr. Schlutz was well known in Minnesota, having been a resident of Minneapolis from 1910 until 1930 and Professor of Pediatrics at the University of Minnesota Medical School.

Dr. Schlutz is survived by his widow and a daughter, Mrs. Mary Tinker of Minneapolis.

ALBERT THOMPSON

Dr. Albert Thompson, who had practiced medicine in Saint James, Minnesota, for more than thirty-five years, died in his office, March 10, 1944, of a heart attack.

Dr. Thompson was born at Sacret Heart, Minnesota, April 22, 1872. He graduated with the degree of B.A. from Gustavus Adolphus College in 1899, and obtained his M.D. from the University of Minnesota in 1905.

Dr. Thompson was a member of the Watonwan County Medical Society and the Minnesota State and American Medical Associations.

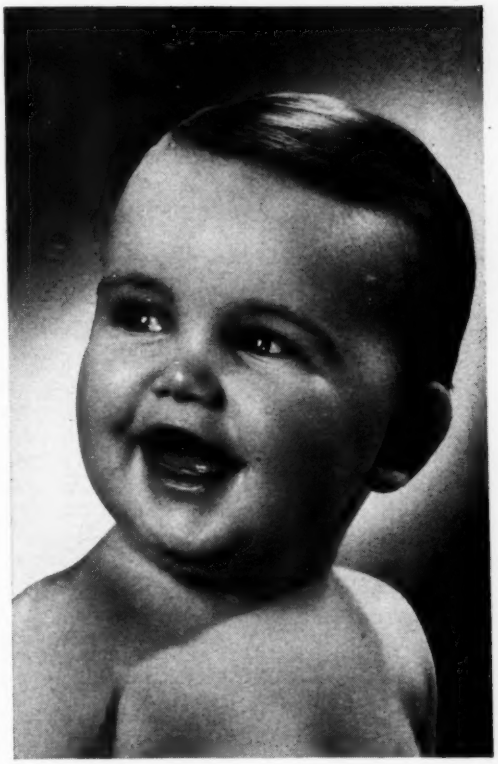
JONAS SAMUEL WHITE

Dr. J. S. White, a former specialist in ear, nose, and throat in Saint Paul, died in Salisbury, Maryland, on February 20, 1944, of a heart attack at the age of seventy-two.

Dr. White was born in Manheim, Pennsylvania, December 9, 1871, and attended the public schools there. He obtained his M.D. from Jefferson Medical School in Philadelphia in 1893, and interned at the Presbyterian Hospital of Philadelphia. He was employed by the Sigue Iron Mining Company in Santiago, Cuba, in 1893-94, and on the Red Star Line Steamers from 1894 until 1897. He was a Contract Surgeon in the U. S. Army from 1898 until 1908.

Dr. White served with the rank of Lieutenant Colonel as surgeon of the 92nd Division and returned to Saint Paul, where he practiced until 1932.

Alaska lies in the same latitude as Sweden, Norway, and Finland; it exceeds in size the combined areas of these three countries which have a combined population of more than 12,000,000 people.



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Of General Interest

Dr. M. S. Nelson is the new chairman of the Board of Health at Granite Falls. He was appointed by the city council at a meeting held in February.

* * *

Dr. C. W. Jacobson, formerly with the Bratrud Clinic at Thief River Falls, has taken over the practice at Breckenridge of Dr. Leo McMahon, who is awaiting call to active duty in the Navy.

* * *

Dr. J. L. McLeod was chosen chief of staff of the Itasca Hospital, Grand Rapids, at the staff meeting held in March. Others serving with him are Dr. M. J. McKenna, vice president, and Dr. Janet Sutton, secretary.

* * *

Dr. W. C. Alvarez of Rochester gave the annual Alpha Omega Alpha lecture at a recent meeting of the Alpha Chapter of Michigan at Ann Arbor: His subject was "The Art of Medicine." Following the lecture he was made an honorary member of the society.

* * *

Dr. William A. O'Brien, director of postgraduate medical education at the University of Minnesota, was reëlected president of the Minnesota Society for the Control of Cancer at its annual meeting in March. Also reëlected was Dr. Max Alberts of Saint Paul, first vice president.

* * *

Professor C. E. A. Winslow, Lauder Professor of Public Health at Yale University, has been appointed Editor of the *American Journal of Public Health*, succeeding Harry Stoll Mustard. Professor Winslow assumes his duties as Editor with the publication of the April issue of the JOURNAL.

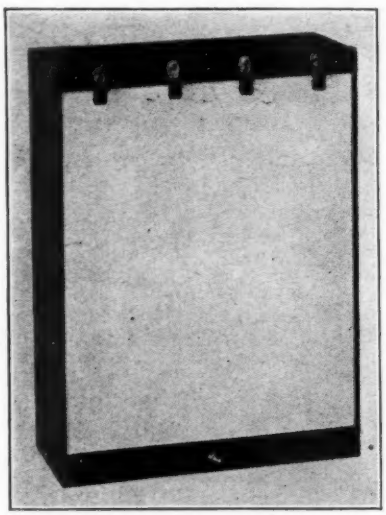
* * *

Word has been received that the exploit of Major Maurice N. Walsh, M.C., A.U.S., in which he cared for a wounded gunner in a bombing plane after he himself had been wounded has been acknowledged by the award of the Air Medal which was presented to Major Walsh by General Herbert Herman in recent ceremonies at a South Pacific base.

* * *

Dr. Ludwig Wolmer Anderson, physician at Atwater for the past thirty-six years, was honored Sunday, March 5, at a dinner given by members of the community in recognition of his years of service. Dr. Anderson will continue to take care of patients at his home but is retiring from active practice owing to failing health.

(Continued on Page 330)



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(Continued from Page 328)

Dr. Frank E. Mork of Anoka, who enlisted in the Navy Medical Corps, began his service as a surgeon with the commission of Lieutenant-Commander, March 27, at the Great Lakes Training Center. Dr. Harold Mork, nephew of Dr. Frank Mork, who has been associated with his uncle since 1941, will continue the practice in Anoka.

* * *

Dr. Howard Vogel of New Ulm, who has received a commission of Lieutenant (sg) in the Navy, reported March 16 to the Naval Base Hospital at Corona, California, for duty. Dr. Hjalmar Mortensbak, physician at Hanska for six years, will take over the practice of Dr. Vogel for the duration of the war. Dr. Mortensbak recently completed three years of surgical fellowship at the University of Minnesota. He has assisted in the Nicollet Clinic, Minneapolis, for the past nine months.

* * *

A recent release from the Navy Department stated that Rear Admiral Charles E. Rosendahl, former commander of the USS *Minneapolis,* commended Lt. Harry R. Walker and his assistants for their work in treating the injured on board the *Minneapolis* during the battle which took place off Guadalcanal on November 30, 1942. The thirty-five men most seriously injured were transferred to a hospital ashore at Tulagi, and not one patient transferred required further operative treatment. Every injured casualty aboard the *Minneapolis* recovered.

* * *

Lt. James F. Regan, commanding officer of a navy medical detachment serving with a marine raider battalion, was recently presented with the Army Silver Star for gallantry in action on New Georgia, Solomon Islands, during the operations against the enemy there last July. The citation accompanying the award read in part as follows: "Dr. Regan directed the activities in the care of and aided the evacuation of over 200 casualties, including seventy-two litter (stretcher) cases, in areas covered by enemy small arms, machine gun and mortar fire during the period from July 8 to July 12."

* * *

Dr. George M. Piersol, professor of medicine in the Graduate School of Medicine, University of Pennsylvania, and a member of the Council on Physical Therapy of the American Medical Association, has been named director of the new Center for Research and Instruction in Physical Medicine in the Graduate School of Medicine at the University. The Center was established by a grant of $150,000 from the National Foundation for Infantile Paralysis. Dr. Piersol will relinquish his private practice to direct the Center, one of whose objectives is to explore thoroughly the possibilities of physical means of treatment, not only of infantile paralysis but of other diseases as well.

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

GALLBLADDER AND BILE DUCTS. Samuel Weiss, M.D., F.A.C.P. Clinical Professor of Gastroenterology, New York Polyclinic Medical School and Hospital; Gastroenterologist Jewish Memorial Hospital, New York; Consulting Gastroenterologist, Beth David Hospital, New York, etc. 504 pages. Illus. Price, $5.50, cloth. Chicago: Year Book Publishers, 1944.

A SYNOPSIS OF CLINICAL SYPHILIS. James Kirby Howles, B.S., M.D., M.M.S. Professor of Dermatology and Syphilology and Director of the Department, Louisiana State University School of Medicine, Senior Visiting Physician, Charity Hospital of Louisiana at New Orleans, Visiting Physician, French Hospital, Mercy Hospital, Hotel Dieu, Southern Baptist Hospital and Touro Infirmary. 671 pages. Illus. Price, $6.00, flexible binding. St. Louis: C. V. Mosby Co., 1943.

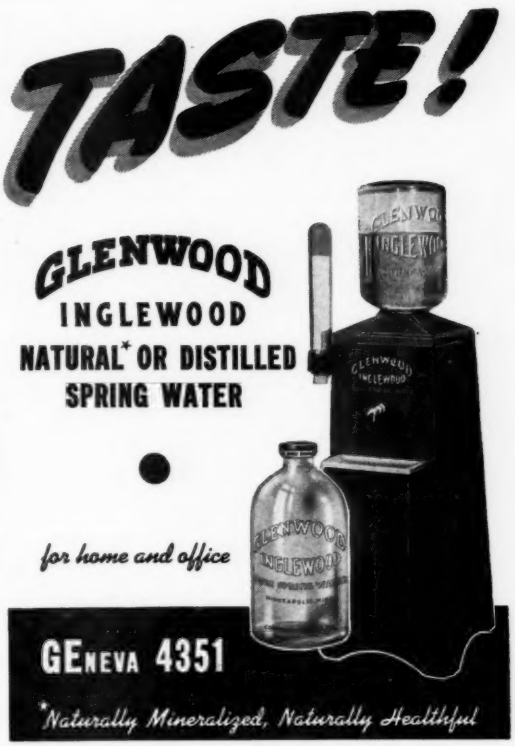
Though intended only to be a compendium, this relatively small book contains a great amount of good information dealing with the general considerations, as well as the familial and public health aspects, of syphilis. The text is divided into twenty-five chapters and there is an appendix entitled "Historical Note," also a large list of references.

The author reiterates in his Preface the important statement to the effect that treatment of syphilis requires a knowledge of the whole field of medicine. It is impressive that a review of this subject must touch upon so many and varied considerations in the field of medicine. The subjects having to do with prognosis, therapy and hereditary syphilis ever embrace categories concerning which there are differences of opinion. The favorable results even in the treatment of neurosyphilis detailed by this author find a hearty response from the reviewer, who has gained similar impressions throughout the last several decades. And the reader of this book cannot avoid being impressed by the many notable advances which have been made by our profession in the more successful all-around management of this human scourge.

J. C. MICHAEL, M.D.

ESSENTIALS OF DERMATOLOGY. Norman Tobias, M.D., 2nd ed. 497 pp. $4.75. Philadelphia: Lippincott, 1944.

This work of nearly 500 pages deserves special con-



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sideration for its conciseness, and it is practical to the extreme point. I do not remember a dermatology textbook which has so ably handled in such a short space the subject treated. In fact, it is a long story made short and, therefore, to be strongly recommended, most specially to the general practitioner who has no time to devote to extensive literature.

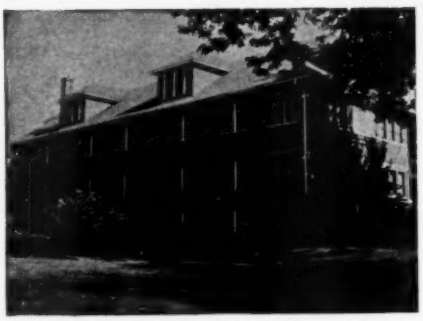
In my opinion, a book like this could be referred to by the average physician, and with a little practice, one could recognize with a good percentage of accuracy about 70 per cent of the cases that come into the office. The treatment is outlined simply and to the point, and for that reason, in my opinion, it is to be strongly commended.

The groupings, especially of the different dermatoses, are sensible and arranged in an orderly manner. Almost everything of any frequency is treated in this work.

It is the opinion of this reviewer that such a textbook would find a most useful place in the library of any general practitioner and would not at all be out of place in that of a specialist.

E. Z. SHAPIRO, M.D.

Carnauba wax from Brazilian palms, formerly used in lipsticks, phonograph records, furniture polishes and for other purposes, is now used as a waterproofing and protective coating on war materials.



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